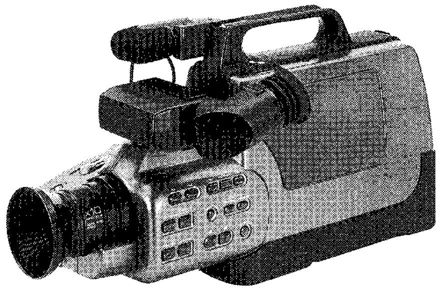
Service
Service
Service

Camcorder

VKR6860/20/21
68VKR60/28



Service Manual

VHS
PAL
HQ

VKR6860/20 Consists of:

-VKR6860/00	Camcorder with video-in
-SBC5440/00	AC Adaptor/charger
-SBC5215/00	Rechargeable battery
-SBC5407/00	Carrying strap
-SBC5509/00	AV Eurocable
-CR2032	Back up battery

VKR6860/21 Consists of:

-VKR6860/01	Camcorder without video-in
-SBC5440/00	AC Adaptor/charger
-SBC5215/00	Rechargeable battery
-SBC5407/00	Carrying strap
-SBC5509/00	AV Eurocable
-CR2032	Back up battery

68VKR60/28 Consists of:

-68VKR60/08	Camcorder without video-in
-SBC5440/20	AC Adaptor/charger
-SBC5215/20	Rechargeable battery
-SBC5407/20	Carrying strap
-SBC5509/00	AV Eurocable
-CR2032	Back up battery

Published by Consumer Electronics Printed in The Netherlands ©Copyright reserved Subject to modification 4822 726 14946

SPECIFICATIONS

[CAMERA section]

Pick-up device	1/2-inch, frame interline transfer (FIT) CCD (Charge coupled device) with total pixels of 420,000
Illumination range	9 to 100,000 lux, lens : F1.6, f= 8 to 80 mm, 10:1 variable speed power zoom lens with macro position, filter diameter of 49 mm
Colour temperature	3,200/4,500/5,600 K switchable
White balance	Auto colour tracking white balance
Iris	Centre-weighted auto iris with backlight compensation and manual override
Focus	Video inner lens Focus system (switchable automatic/manual)
Shutter speed	Switchable 1/50, 1/125, 1/250, 1/500, 1/1000 and 1/2000 second
Exclusive microphone	Omnidirectional condenser type

[VCR section]

Format	VHS PAL standard
Signal system	PAL type colour signal
Video recording system	Rotary, two-head helical scan system
Cassette tape	VHS video cassette
Tape speed	23.39 mm/sec
Maximum recording time	240 min. with E-240 video cassette 180 min. with E-180 video cassette
View finder	Electronic view finder with 0.9 inch black/white CRT

Video

Output	1.0 Vp-p, 75 ohms, unbalanced
Input	0.5 to 2.0 Vp-p, 75 ohms, unbalanced
S/N	47 dB(WTD)
Horizontal resolution	240 lines

Audio

Output level/Impedance	−6 dBs/1 kohms or less, unbalanced
Input level/Impedance	−8 dBs/50 kohms or more, unbalanced
Microphone input level/ Impedance	−68 dBs, high impedance, unbalanced
S/N	40 dB or more

[General]

Power source	DC 12 V
Power consumption	10.5 W
Operating temperature	0 to 40°C
Operating humidity	20 to 80 %
Storage temperature	−25 to +60°C
Dimensions	106(W) × 182(H) × 410(D) mm
Weight	2.5 kg (exclude battery)

AC adaptor(SBC5440)

Power requirement	AC 100 to 240 V, 50/60 Hz
Power consumption	37 W
Output	DC 13 V, 0.9 A(VCR mode)
Charging system	DC 15 V, 1.5 A. Constant current, peak detection, time controlled
Dimension	80(W) × 50(H) × 196(D) mm
Weight	600 g

*** Design and specifications are subject to change without notice.**

*** 0 dBs = 0.775 V**

TABLE OF CONTENTS

SPECIFICATIONS 1
TABLE OF CONTENTS 2
I. SAFETY PRECAUTIONS 3
- 1-1. PRECAUTIONS DURING SERVICING 3
- 1-2. PRECAUTIONS FOR THE LITHIUM BATTERY 3

II. GENERAL INFORMATION 3
- 2-1. TEST EQUIPMENTS AND TOOLS REQUIRED 3
  SPECIAL TEST EQUIPMENT AND TOOLS REQUIRED FOR ADJUSTMENTS 4
- 2-2. REPLACEMENT OF THE CHIP PARTS 5
- 2-3. MAINTENANCE SCHEDULE 6

III. CONTROLS 7
IV. LOCATION OF PRINCIPAL PC BOARDS 11
V. DISASSEMBLY 12
- 5-1. REMOVAL OF THE MIC BLOCK 12
- 5-2. REMOVAL OF THE CASSETTE COVER 12
- 5-3. REMOVAL OF THE L-CASE, MANUAL PCB AND IND PCB 12
- 5-4. REMOVAL OF THE VCR BLOCK 13
- 5-5. REMOVAL OF THe TRIPOD BLOCK 13
- 5-7. REMOVAL OF THE REAR PANEL BLOCK 14
- 5-8. REMOVAL OF THE BATTERY CASE BLOCK 14
- 5-9. OPENING THE VIDEO PC PCB 14
- 5-10. REMOVAL OF THE SSPA PCB AND VIDEO PCB 14
- 5-11. REMOVAL OF THE HEAD AMP PCB 15
- 5-12. REMOVAL OF THE MECHA BLOCK 15
- 5-13. REMOVAL OF THE CAMMERA BLOCK 15
- 5-14. REMOVAL OF THE AWB.PCB 15
- 5-15. REMOVAL OF THE PROCESS PCB 15
- 5-16. REMOVAL OF THE CCD PCB BLOCK 16
- 5-17. REMOVAL OF THE LENS BLOCK 16

VI. REPLACEMENT OF THE PRINCIPAL MECHANICAL PARTS 17
- 6-1. REPLACEMENT OF THE UPPER DRUM 17
- 6-2. REPLACEMENT OF THE LOWER DRUM MOTER ASSY 18
- 6-3. REPLACEMENT OF THE AIC HEAD 18
- 6-4. REPLACEMENT OF THE PIHCHROLLER ASSY 18
- 6-5. REMOVAL OF THE OTHER MECHANICAL PARTS 19

VII. VCR SECTION ADJUSTMENT 21
- 7-1. PREPARATIONS 2
- 7-2. MECHANICAL ADJUSTMENT 22
- 7-3. SSPA PCB and IND PCB ADJUSTMENT 24
- 7-4. HEAD AMP PCB AND VIDEO PCB ADJUSTMENT 25
- 7-5. MIC AMP PCB ADJUSTMENT 26

VIII. CAMERA SECTION ADJUSTMENT 27
- 8-1. PREPARATION AND PRECAUTION 27
- 8-2. INSTRUMENTS CONNECTION 27
- 8-3. AF, ETF AND CCD PCB ADJUSTMENT 28
- 8-4. PROCESS AND AWB PCB ADJSUTMENT 29
- 8-5. EVF (ELECTRONIC VIEWFINDER) PCB ADJUSTMENT 31

IX. OVERALL WIRING AND BLOCK DIAGRAMS 32
- 9-1. OVERALL WIRING DIAGRAMS 32
- 9-2. SYSCON AND SERVO BLOCK DIAGRAM 33
- 9-3. POWER SUPPLY BLOCK DIAGRAM 34
- 9-4. AUDIO BLOCK DIAGRAM 35
- 9-5. VIDEO BLOCK DIAGRAM 36
- 9-6. CAMERA BLOCK DIAGRAM 37
- 9-7. OPERATION BLOCK DIAGRAM 38

X. SCHEMATIC DIAGRAMS AND PC BOARDS 39
- 10-1. AUDIO SCHEMATIC DIAGRAM 39
- 10-2. POWER SUPPLY SCHEMATIC DIAGRAM 40
- 10-3. SYSCON AND SERVO SCHEMATIC DIAGRAM 41
- 10-4. SSPA PC BOARD 42
- 10-5. VIDEO SCHEMATIC DIAGRAM 43
- 10-6. VIDEO PC BOARD 44
- 10-7. IND SCHEMATIC DIAGRAM 45
- 10-8. IND PC BOARD 46
- 10-9. HEAD AMP SCHEMATIC DIAGRAM 47
- 10-10. HEAD AMP PC BOARD 48
- 10-11. OPERATION SCHEMATIC DIAGRAM 49
- 10-12. OPERATION PC BOARD 49
- 10-13. MIC AMP SCHEMATIC DIAGRAM 50
- 10-14. EVF SCHEMATIC DIAGRAM 50
- 10-15. C.C.D. SCHEMATIC DIAGRAM 51
- 10-16. C.C.D. PC BOARD 52
- 10-17. AWB PC BOARD 53
- 10-18. AWB SCHEMATIC DIAGRAM 54
- 10-19. PROCESS PC BOARD 55
- 10-20. PROCESS SCHEMATIC DIAGRAM 56
- 10-21. AF SCHEMATIC DIAGRAM 57
- 10-22. ETF SCHEMATIC DIAGRAM 57
- 10-23. ACT SENSOR SCHEMATIC DIAGRAM 58
- 10-24. ACT SENSOR PC BOARD 58

XI. INFORMATION OF IC'S 59
XII. EXPLODED VIEWS AND PARTS LIST 60
- 12-1. PACKING ASSEMBLY 60
- 12-2. CABINET ASSEMBLY 61
- 12-3. EVF ASSEMBLY 62
- 12-4. MECHANICAL ASSEMBLY 63
- 12-5. ELECTRICAL PARTS LIST 65

XIII. AC ADAPTOR 78
- 13-1. DISASSEMBLY 78
- 13-2. OUTPUT VOLTAGE ADJUSTMENT 78
- 13-3. EXPLODED VIEW 79
- 13-4. ELECTRICAL PARTS 79
- 13-5. AC ADAPTOR SCHEMATIC DIAGRAM 80

XIIII. KEY TO ABBRIVIATIONS 81

I. SAFETY PRECAUTIONS

1-1. PRECAUTION DURING SERVICE

1. Disconnect the unit from the power before removing or soldering components.
2. When removing the fastener(screws, washers, etc.), be careful not to drop it in the mechanism. If drop it, be sure to remove it.
3. When removing the connectors, pay enough attention to flexible wires and every wiring not to damage then.
4. Some resisters, shorting jumpers(0 ohm resisters), ceramic capacitors and diodes are chip parts, these chip parts cannot be reused after they are once removed.
5. Electrical adjustment are required after replacing the circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairers and replacements have been completed. Also, do not attempt these adjustments unless the proper equipments is available. Especially, when turn 0the VR on the camera portion without permission, the whole steps to adjust all VR's may be required.
6. When removing and fitting together parts, be careful not to damage or displace other parts.(Be especially careful with the video head assembly and the tape transport mechanism.)
7. Pay enough attention to the CCD(Charge Coupled Device) image sensor and optical filters so that they won't be dusty, soiled or damaged. It is soiled with finger prints, etc., clean gently with the silicon lens tissue or chamois.
8. When fitting and wiring the IC, be careful that the circuit patterns are not to damaged.

1-2. PRECAUTION FOR THE LITHIUM BATTERY

The lithium battery may explode when heated excessively. When replacement of the lithium battery is necessary, read the following attentions.

1. Replace with the same make and type or equivalent.
2. Place the battery in correct polarity.
3. Do not recharge the battery.
4. Do not dispose the battery in fire.
5. Do not short the terminals.

II. GENERAL INFORMATION

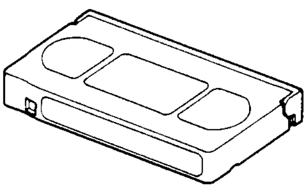
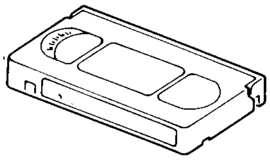
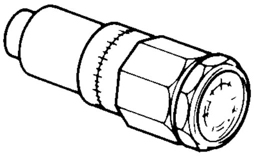
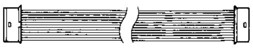
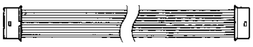
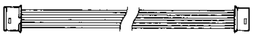
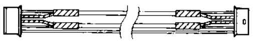
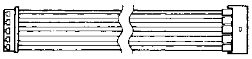
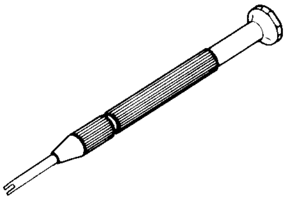
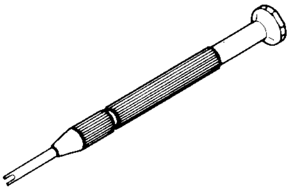
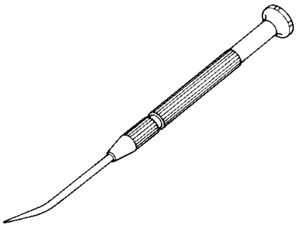
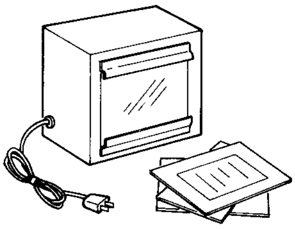
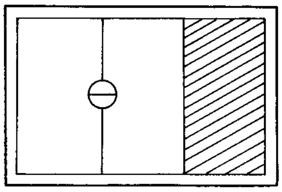
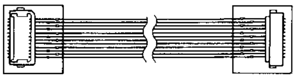
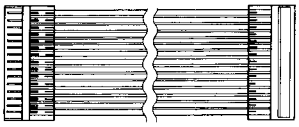
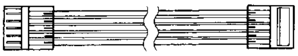
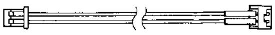
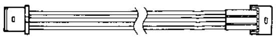
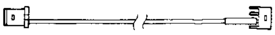
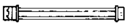
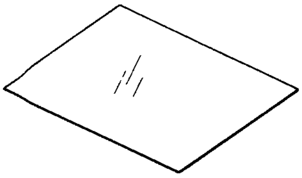
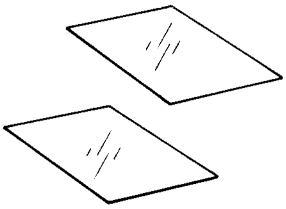
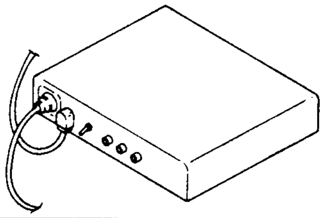
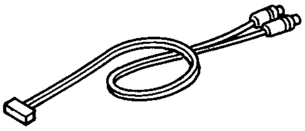
2-1. TEST EQUIPMENT AND TOOLS REQUIRED FOR SERVICING

For correct measurement and proper adjustment, the following test equipments and tools are necessary.

[Required test equipments and tools]

1. Colour video monitor
2. Oscilloscope(Dual trace type, more than 20 MHz)
3. Frequency counter(8 digits)
4. Vectorscope
5. Audio tester
6. AC Adaptor(SBC5440) or equivalent power source
7. Halogen lamps
8. Blank test tapes for recording and playback
9. General tools such as precision screwdrivers, soldering iron, hexagon wrenches, etc.

Special test equipment and tools required for adjustments

Alignment tape MH-2 4822 397 30107	Back tension cassette gauge 4822 395 90615	Torque gauge assembly	CAMERA Extension cable
			4822 321 61356 (7P)  4822 321 61357 (6P)  4822 321 61358 (4P)  4822 321 61359 (5P)  4822 321 61361 (5P) 
Chip parts replacing tool 4822 395 50365	Chip parts replacing tool 4822 395 50366	Chip IC replacing tool 4822 395 90612	
			
Light box with pattern (Dai-nippon)	DIC-547 chart 4822 397 30247	Camera P.C.B. 4822 321 61355	SSPA PCB Extension cable
			4822 321 61362  4822 321 61363  4822 320 50236 4822 321 61364  4822 321 61365  4822 321 61366  4822 321 61367 
Filter KODAK C25	Filter KODAK 80C and 80D	Y/C separator 4822 397 60098	
			
		Y/C separator cable 4822 321 61368	
			

2-2. REPLACEMENT OF THE CHIP PARTS

For replacing the chip parts, proceed it as follows.
Use a well insulated fine tipped soldering iron(approx. 17 W, 130°C to 260°C in temperature).
In addition, it is recommended to use a soldering iron(approx. 55 W) with solder absorber for convenience.

Cautions when replacing the chip parts

1. Do not apply heat for more than 3 seconds.
2. Do not rub electrodes.
3. Do not reuse chips which removed once. Discard them.
4. Supplementary cementing is not required.

2-2-1. How to remove the chip parts

[For resistors, capacitors, etc.]

1. Set the chip parts replacing tool onto the chip parts to hold it down.
2. Unsolder at a side of the chip parts.
3. Remove the chip parts by gently twisting with the chip parts replacing tool while heating by soldering iron.

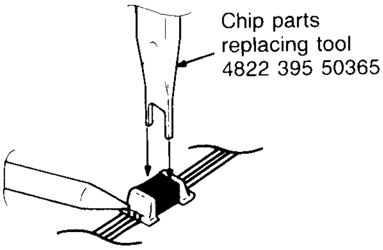


Fig. 2-1

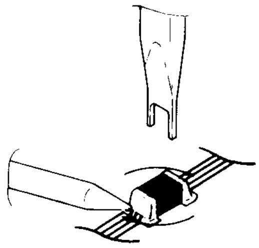
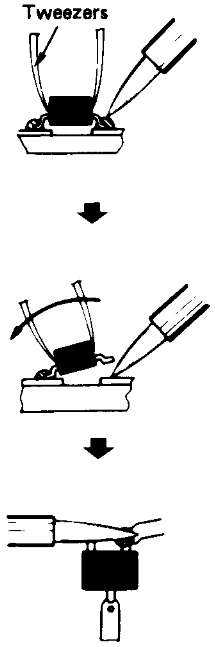


Fig. 2-2

[For transistors, diodes, etc.]

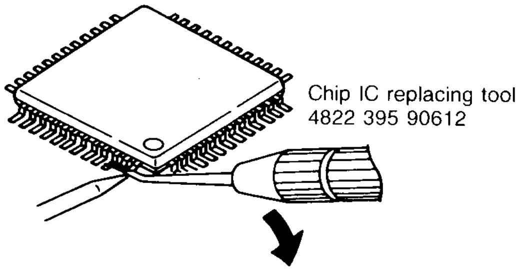
1. Remove the solder at the one-lead side of the chi parts.
2. Lift up the unsoldered side a bit with the tweezers during heating by soldering iron.
3. Remove the solder at the other two-leads side, then gently remove the chip parts while heating the leads alternately by soldering iron.



[For ICs]

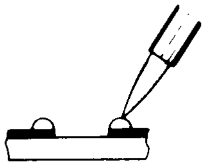
1. Remove the solder from all leads of flat IC using by solder remover.
2. Gently lift up the each lead a bit using by chip IC replacing tool while heating the lead by soldering iron.
3. After detached all the leads of flat IC, then remove the flat IC.

Fig. 2-6



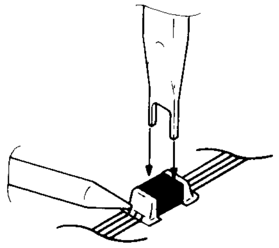
2-2-2. Preheating and soldering

When install the new chip parts, especially capacitors, but except transistors, preheat them with hot air(Approx. 150 C) by using blower type dryer for about 2 minutes just before soldering. For soldering use a soldering iron of approx. 30 W.



2-2-3. How to install the chip parts

1. Presolder the contact points where the chip parts will be soldered on the circuit pattern.
2. Holding down the new chip parts with the chip parts replacing tool and solder it with a soldering iron.



2-3. MAINTENANCE SCHEDULE

The following table indicates the standard servicing period by kind of servicing such as cleaning, oiling, replacing consumptive parts, etc. in practice, the indicated periods will widely vary according to environmental and using condition, but it is plain that nonfulfillment of the maintenance work not only shortens the specific period of every item sharply but also influences other components badly.

Also be aware that rubber parts may possibly deform and age as time passes even when set is not used.

System	Parts name	Periodic service schedule (Operation hours)							
		250	500	750	1000	1250	1500	1750	2000
Tape transport system	Upper drum				O				*
	A/C head				O				*
	Pinch roller arm				O				*
	Full erase head				O				*
	Tension arm								*
	Lower drum motor				O				*
	Capstan motor shaft	C	C	C	C				*
	Half loading arm								*
Drive system	Capstan motor				O				*
	Timing belt				O				*
	SUP reel disk								*
	TU reel disk								*
	Idler gear unit								*
Others	Brush				O				*
	SUP tension arm				O				*

C: Cleaning O: Check and replace, if necessary *: Replace

Table 2-1. Maintenance schedule

2-3-1. Cleaning

1. For cleaning the upper drum(Particularly video heads) use fine-woven cotton cloth or kimwipe which alcohol soaks through. Regarding cleaning manner, do not move the cloth but turn the upper drum counter-clockwidth.

[NOTE]:

1. Make sure not to move the cloth in the vertical direction to the video head, since it causes damage of the video heads.
2. For cleaning the parts of tape transport system except the upper drum, use the fine-woven cotton cloth or cotton sticks in which alcohol soaks.
3. Before loading the deck with cassette tape, confirm that the cleaned parts are completely dry.

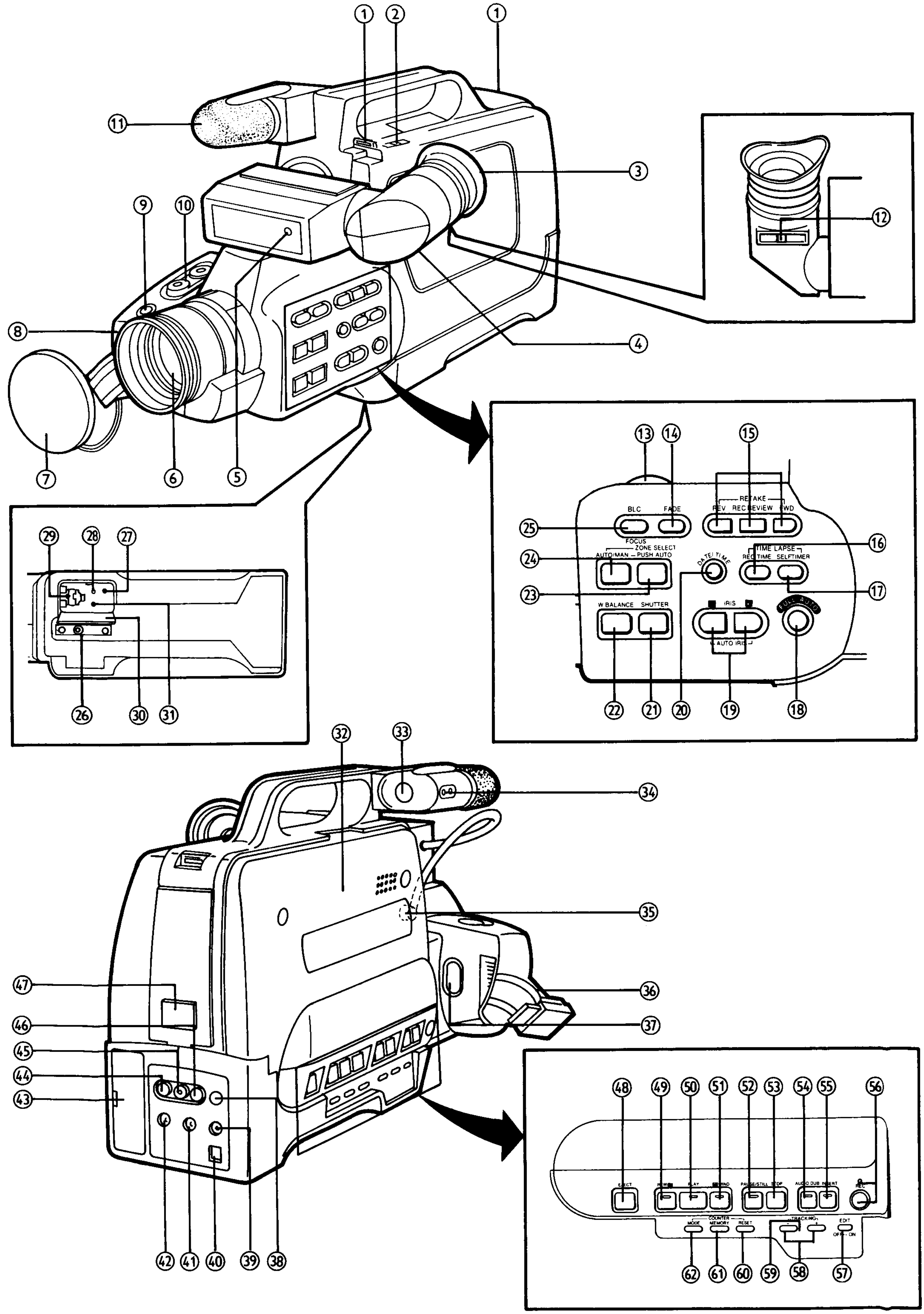
2-3-2. Applying oil and grease

1. For the parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly and chassis assembly.
2. When oiling, clean the objective parts first and then apply one or two drop(s) of oil. Too much oiling causes rotary parts to slips because of oil leakage.

2-3-3. Checkup and adjustment

1. After replacement of the supply reel disk and tension band, make sure to inspect and adjust back tension according to the adjustment procedure of deck section.

III. CONTROLS


①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔
㉕
㉖
㉗
㉘
㉙
㉚
㉛
㉜
㉝
㉞
㉟
㊱
㊲
㊳
㊴
㊵
㊶
㊷
㊸
㊹
㊺
㊻
㊼
㊽
㊾
㊿
(51)
(52)
(53)
(54)
(55)
(56)
(57)
(58)
(59)
(60)
(61)
(62)
BLC
FADE
RETAKE
REV
REC REVIEW
FWD
FOCUS
ZONE SELECT
AUTO/MAN
PUSH AUTO
DATE/TIME
TIME LAPSE
REC TIME
SELFTIMER
W BALANCE
SHUTTER
IRIS
AUTO IRIS
FULL AUTO
EJECT
REW
PLAY
PAUSE/STILL
STOP
AUDIO DUB
INSERT
REC
COUNTER
MODE
MEMORY
RESET
TRACKING
-
+
EDIT
OFF - ON

① **Carrying strap eyelets**
For attaching the carrying strap.

② **POWER switch and indicator**
To turn the power on and off.

③ **Eyepiece**

④ **EVF (Electronic ViewFinder)**
To monitor the recording and playback picture. Also shows the operation modes.

⑤ **Tally**
To indicate the recording mode.

⑥ **Lens**

⑦ **Lens cap**

⑧ **Auto white balance detection window**
To sense the colour temperature. Do not cover this window.

⑨ **2nd recording start/stop button**
To start recording from record pause mode or to enter record pause mode from recording mode when shooting from low angle etc..

⑩ **Power zoom button**
To control the telephoto " T " zooming or wide range " W " zooming.

⑪ **Microphone**
Records sound onto the video tape.

⑫ **Dioptric adjustment control**
To adjust the viewfinder to your eyesight for better focus.

⑬ **MANUAL FOCUS control**
To adjust the focus manually in the manual focus mode.

⑭ **FADER button**
To activate fade-in or fade-out of the picture and audio.

⑮ **RETAKE buttons**
When the Camcorder is in the recording pause mode:
FWD button : To playback a scene at normal speed in forward direction.
REV button : To playback a scene at normal speed in reverse direction.
REC REVIEW button : The last 2 to 3 seconds of the recorded scenes are played back and the Camcorder will again stop in the recording pause mode.

⑯ **REC TIME button**
To select animation recording while in the recording pause mode.

⑰ **SELF TIMER button**
To select self timer recording while in the recording pause mode.

⑱ **FULL AUTO button**
Set the Camcorder to automatically adjust the white balance, shutter speed, focus and iris control.

⑲ **IRIS +/– button**
To control the iris open/close in manual positions.

⑳ **DATE/TIME button**
To select whether or not to record the date/time on the video tape.

㉑ **SHUTTER button**
To select the electronic high shutter speed manually.

㉒ **W. (White) BALANCE button**
To select the manual white balance preset position.

㉓ **FOCUS ZONE SELECT/PUSH AUTO button**
ZONE SELECT : To select the wide or narrow of focus frame in auto focus mode.
PUSH AUTO : Momentary automatic focus when this button is pushed in manual focus mode.

㉔ **FOCUS AUTO/MANUAL button**
Press once for automatic focus, and press again for manual focus mode.

㉕ **BLC (Back Light Compensator) button**
To engage the back light compensation mode.

㉖ **Tripod mount**
To attach the Camcorder to the tripod.

㉗ **DATE/TIME SELECT button**
To select the time and date function when setting the built-in clock.

㉘ **DATE/TIME SET button**
To set the time and date functions of the built-in clock.

㉙ **Lithium battery compartment**
To install the lithium battery for auto date/time back up.

㉚ **Lithium battery compartment cover**

㉛ **PSU (Personal Set Up) button**
To preset the operation of the camera section according to your personal choice.

㉜ **Cassette compartment**
Insert the video cassette for recording and playback.

㉝ **MIC. SENS (MICrophone SENSitivity) select switch**
To select the built-in microphone's sensitivity.

㉞ **EXT. MIC (EXTernal MICrophone) jack**
For connecting the external microphone.

㉟ **EVF (Electronic ViewFinder) jack**
For connecting the electronic viewfinder.

㊱ **Hand grip strap**

㊲ **Recording start/stop button**
To start recording from record pause mode or record pause from recording mode.

㊳ **VIDEO IN terminal (/00 model only)**
Video input terminal to record from a TV tuner or another Camcorder.

㊴ **AUDIO IN terminal**
Audio input terminal to record from a TV tuner or another Camcorder.

㊵ **DC IN jack**
To connect the Camcorder to the AC adaptor.

㊶ **FULL REMOTE terminal**
To connect the VIDEO EDITOR control unit (optional).

㊷ **PHONE jack**
To connect the earphone for audio monitoring.

㊸ **Battery compartment**
To mount the rechargeable battery pack.

㊹ **VIDEO OUT terminal**
Video output terminal connects to a TV monitor or another VCR (Video Cassette Recorder).

㊺ **DC OUT terminal**
DC power supply for RF (Radio Frequency) convertor.

㊻ **AUDIO OUT terminal**
Audio output terminal connects to a TV monitor, another VCR (Video Cassette Recorder) or audio set.

㊼ **Battery release button**
To release the battery from the battery compartment.

㊽ **EJECT button**
To eject the video cassette.

㊾ **REW (REWind) button**
Rewinds the video tape.
Fast playback in reverse (REVIEW) in the play mode.
Normal speed playback in reverse (RETAKE) in the recording pause mode.

㊿ **PLAY button**
To start playback.

(51) **WIND button**
Fast forwards the video tape.
Fast playback (CUE) in the play mode.
Normal speed playback (RETAKE) in the recording pause mode.

(52) **PAUSE/STILL button**
Still picture during playback or to stop playback temporarily.

(53) **STOP button**
To engage the stop mode.

(54) **AUDIO DUB (DUBbing) button**
Press this button together with the PLAY button for audio dubbing.

(55) **INSERT button**
To perform insert editing.

(56) **REC button and indicator**
To engage the recording pause mode.

(57) **EDIT ON/OFF switch**
For best picture quality when dubbing to a another VCR (Video Cassette Recorder).

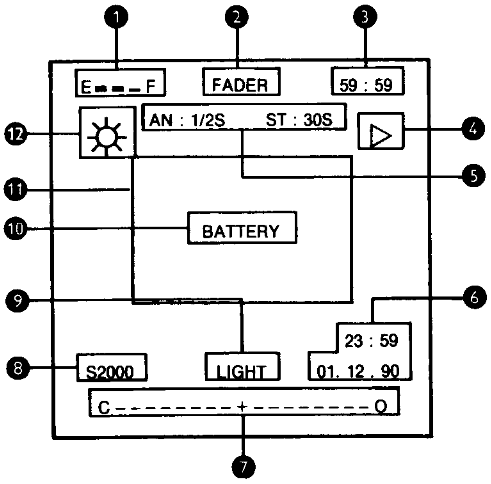
(58) **TRACKING +/– button**
To obtain optimum pictures during playback.

(59) **On track indicator**
To indicate that auto tracking mode is being used.

(60) **COUNTER RESET button**
To reset the counter to "0000".

(61) **COUNTER MEMORY button**
The tape will stop automatically at about the point on the tape you want to locate later.

(62) **COUNTER MODE select button**
To select the tape counter, lap time counter or to delete the counter, battery status and function mode indications in the electronic viewfinder.



① **Battery status display**
Indicates the approximate charge of the battery.

② **Fader display**
Indicates the fader is reserved. Blinking "FADER" indicates that the fader mode is in operation.

③ **Time lapse/Tape counter/Memory stop/Cassette display**
Indicates tape position, tape stop at "M0000" or indicates recording time in hours, minutes and seconds.

④ **Function modes/Dew warning display**
Indicates the function modes as follows. Also indicates a "DEW" warning, if there is dew in the Camcorder.

STOP:	□	FAST FORWARD:	▷▷	FRAME REVERSE:	◁▯▯
PLAY:	▷	REVIEW:	◁◁	EJECT:	⏏
PAUSE (STILL):	▯▯	CUE:	▷▷	DEW:	δ
RECORD:	○	AUDIO DUBBING:	⊖	INSERT PAUSE:	(▷) ▯▯
RECORD PAUSE:	○ ▯▯	INSERT:	(▷)	REVERSE:	◁
REWIND:	◁◁	FRAME ADVANCE:	▯▯▷	AUDIO DUBBI-NG PAUSE:	⊖ ▯▯

⑤ **Timer function display**
Indicates the duration of self-timer recording, animation recording or the interval for time lapse recording.

⑥ **Date/time and clock warning (→ E) display**
Indicates date and time, which can be superimposed onto the recording.

⑦ **Iris status display**
Indicates the status of the iris in manual mode.

⑧ **Shutter speed display**
Indicates the selected shutter speed.

⑨ **Low light warning display**
If the blinking "LIGHT" indication appears in the viewfinder, the amount of light is insufficient.
In this case, confirm that the iris and shutter speed are set in the auto mode. If the setting is correct, increase the lighting.

⑩ **Battery warning display**
Indicates blinking "BATTERY", if the rechargeable battery is becoming exhausted.

⑪ **Focus zone display**
To indicate the auto focus detecting area.

⑫ **White balance display**
Indicates the mode selected for manual (or auto) white balance.

IV. LOCATION OF PRINCIPAL PC BOARDS

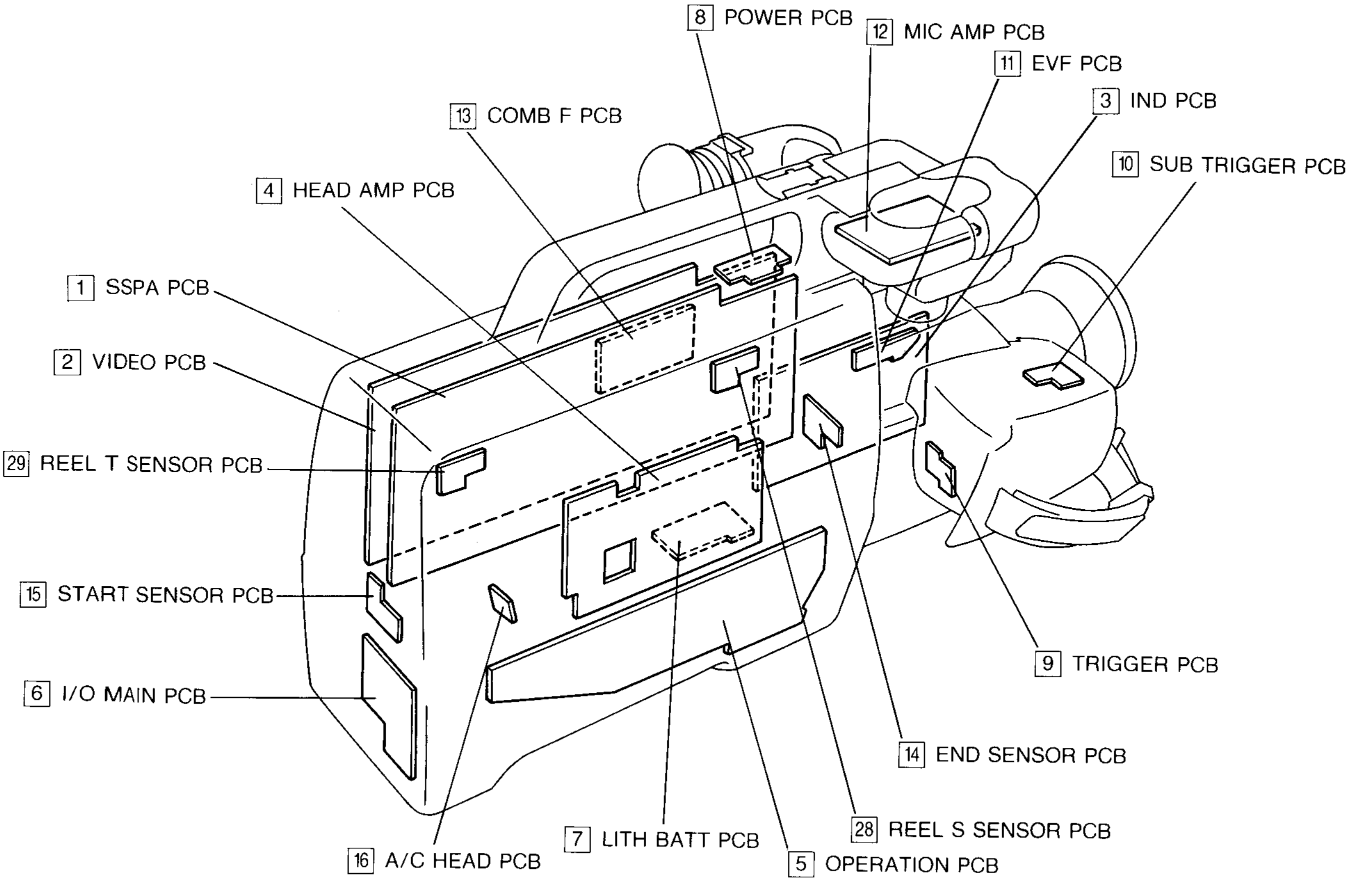

8 POWER PCB
12 MIC AMP PCB
11 EVF PCB
3 IND PCB
13 COMB F PCB
10 SUB TRIGGER PCB
4 HEAD AMP PCB
1 SSPA PCB
2 VIDEO PCB
29 REEL T SENSOR PCB
15 START SENSOR PCB
6 I/O MAIN PCB
9 TRIGGER PCB
14 END SENSOR PCB
28 REEL S SENSOR PCB
7 LITH BATT PCB
16 A/C HEAD PCB
5 OPERATION PCB

Fig.4-1 VCR Section

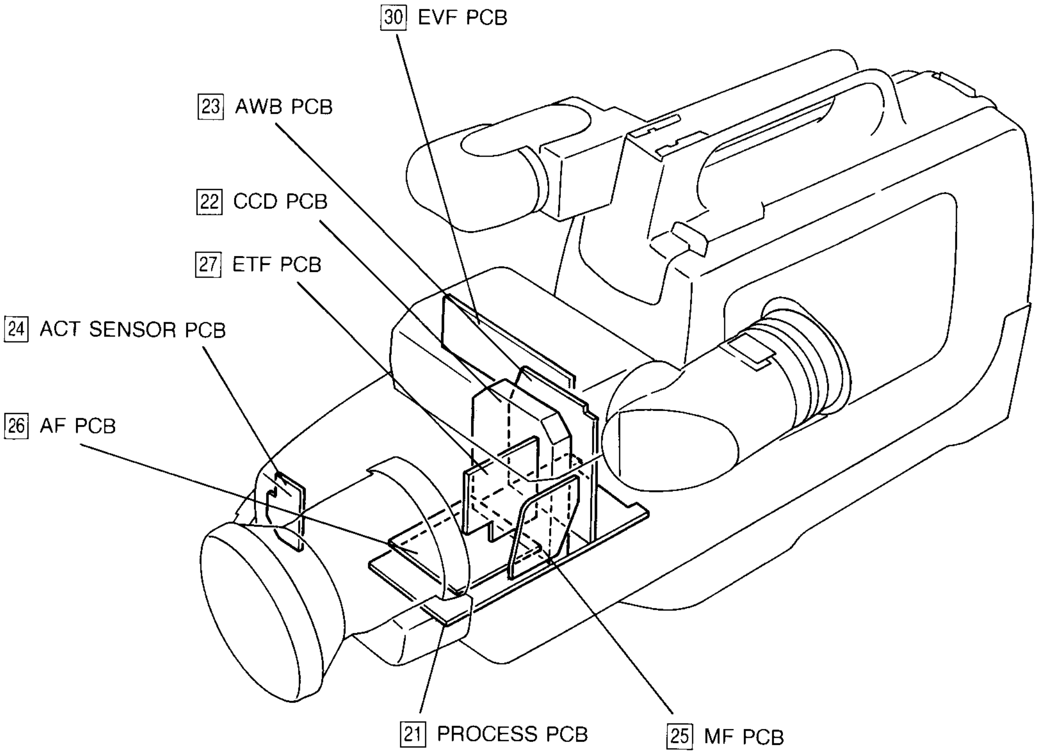
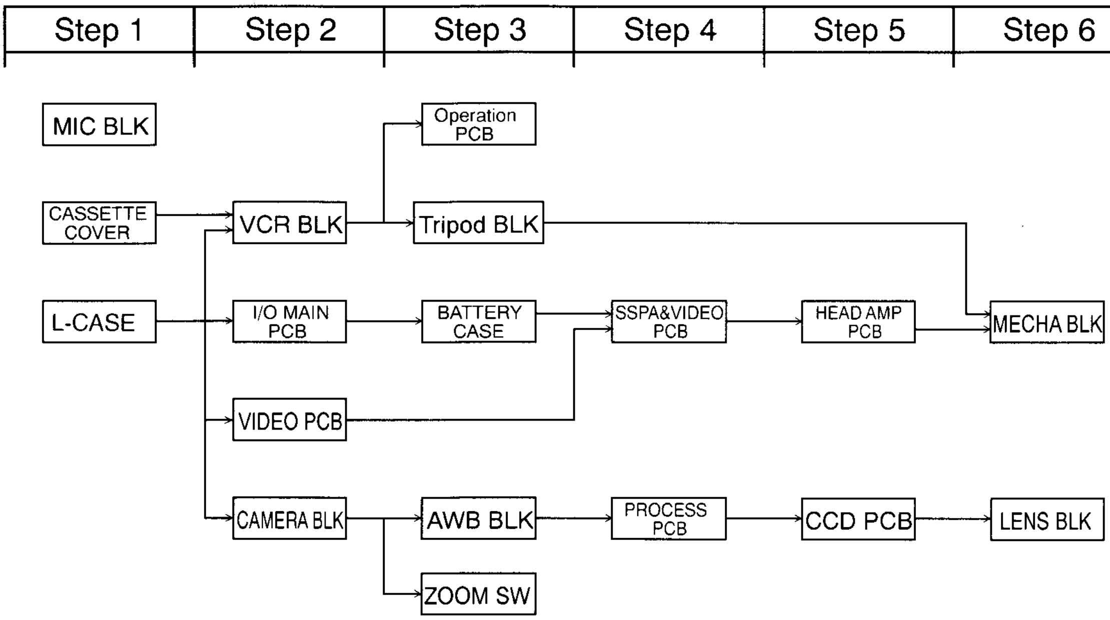

30 EVF PCB
23 AWB PCB
22 CCD PCB
27 ETF PCB
24 ACT SENSOR PCB
26 AF PCB
21 PROCESS PCB
25 MF PCB

Fig.4-2 CAMERA Section

V. DISASSEMBLY

Incase of trouble etc., when necessary to dismantling the unet, dismantle the unit accordintg to following procedure. Reassemble in reverse order.


Step 1
Step 2
Step 3
Step 4
Step 5
Step 6
MIC BLK
Operation PCB
CASSETTE COVER
VCR BLK
Tripod BLK
L-CASE
I/O MAIN PCB
BATTERY CASE
SSPA&VIDEO PCB
HEAD AMP PCB
MECHA BLK
VIDEO PCB
CAMERA BLK
AWB BLK
PROCESS PCB
CCD PCB
LENS BLK
ZOOM SW

5-1. REMOVAL OF THE MIC BLOCK

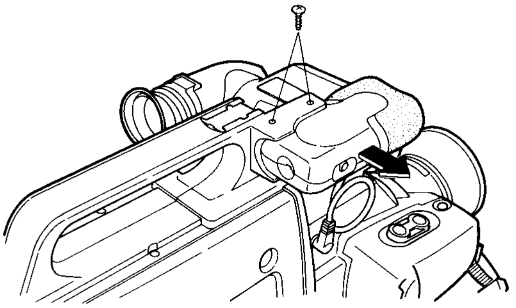


Fig. 5-1

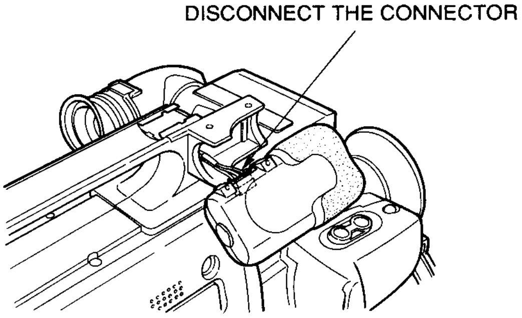

DISCONNECT THE CONNECTOR

Fig. 5-2

1) Remove two MIC BLOCK fixation screws and pull the MIC BLOCK out to arrow marked direction.
2) Disconnect the connector on the MIC AMP PC board.

5-2. REMOVAL OF THE CASSETTE COVER

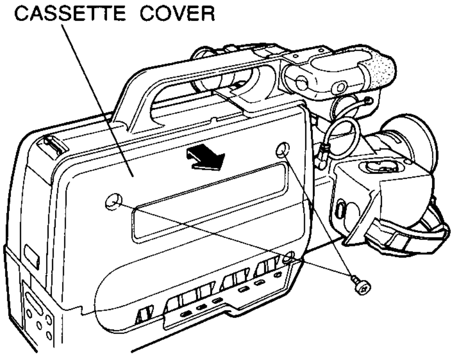

CASSETTE COVER

Fig. 5-3

1) Remove two CASSETTE COVER fixation screws, then remove the CASSETTE COVER.

5-3. REMOVAL OF THE L-CASE, MF PCB AND IND PCB

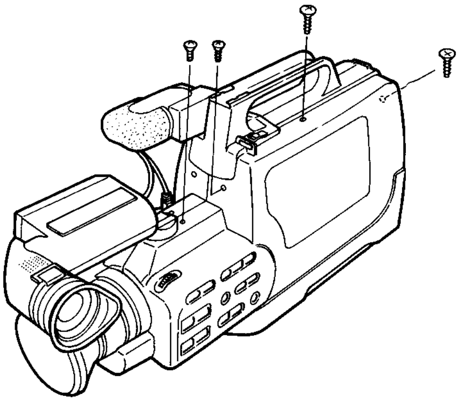


Fig. 5-4

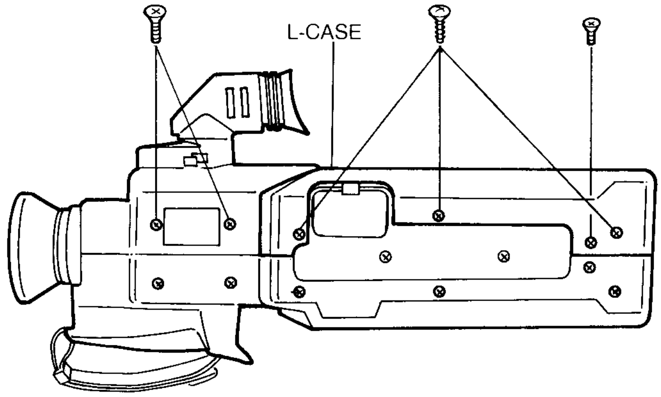


Fig. 5-5

1) Remove ten L-CASE fixation screws as shown Fig. 5-4 and 5-5.
2) Pull the L-CASE out.

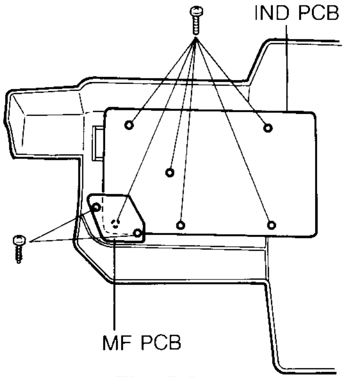


Fig. 5-6

3) Remove two MF PC board fixation screws, then remove the MF PC board from the L-CASE.
4) Remove six IND PC board fixation screws, then remove the IND PC board from the L-CASE.

5-4. REMOVAL OF THE VCR BLOCK

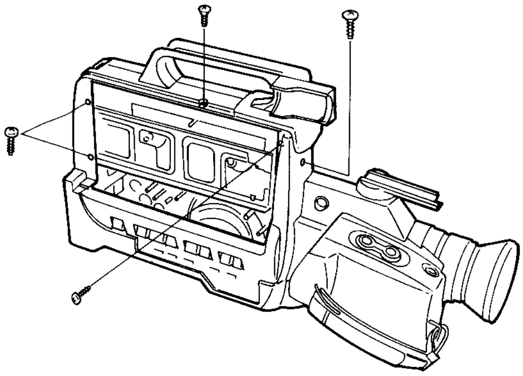


Fig 5-7

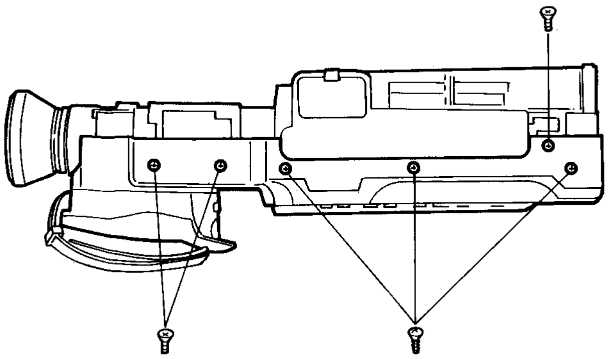


Fig. 5-8

1) Remove ten VCR BLOCK fixation screws as shown Fig. 5-7 and 5-8.
2) Disconnect the connectors N203 and N204 on the PROCESS PC board.
3) Disconnect the connectors N401 and N701 on the AWB PC board.
4) Disconnect the connectors N601, N603, N611 and N612 on the IND PC board.
5) Remove the VCR BLOCK from the R-CASE.

5-5. REMOVAL OF THE OPERATION PCB

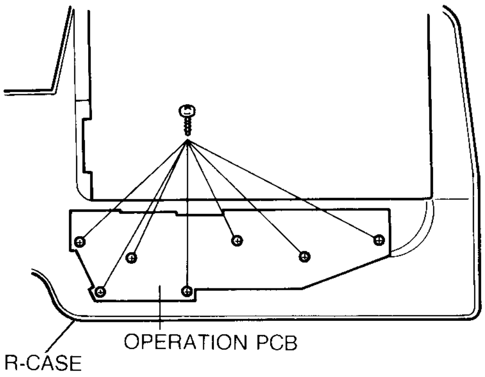


Fig. 5-9

1) Disconnect the connector N611 on the IND PC board.
2) Remove seven OPERATION PC board fixation screws, then remove the OPERATION PC board.

5-6. REMOVAL OF THE TRIPOD BLOCK

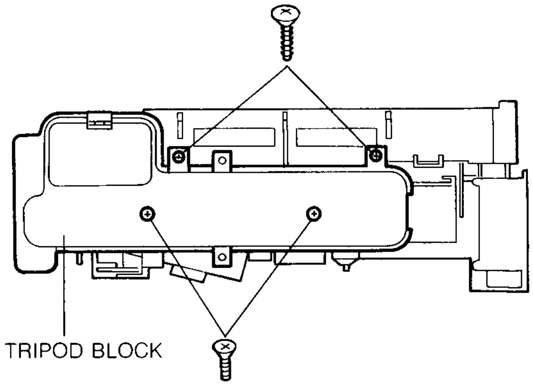


Fig. 5-10

1) Disconnect the connector N605 on the IND PC board.
2) Remove four TRIPOD BLOCK fixation screws, then remove the TRIPOD BLOCK.

5-7. REMOVAL OF THE REAR PANEL BLOCK

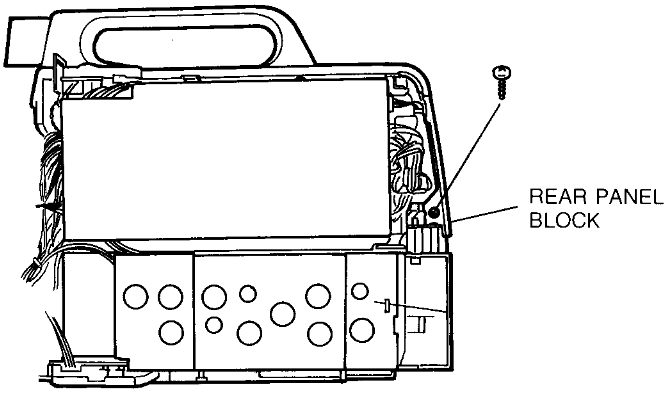


Fig. 5-11

1) Remove a REAR PANEL BLOCK fixation screw.
2) Disconnect the connectors NA01 and NA03 to NA07 on the I/O
   MAIN PC board, then remove the REAR PANEL BLOCK.

5-8. REMOVAL OF THE BATTERY CASE BLOCK

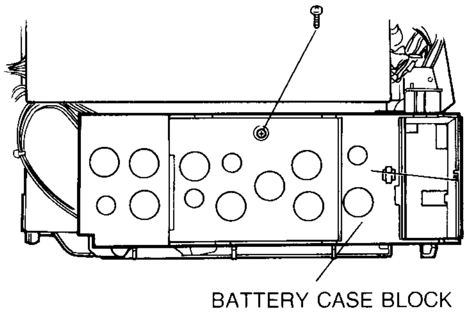


Fig. 5-12

1) Remove a BATTERY CASE BLOCK fixation screw and disconnect the connector N901 on the SSPA PC board, then remove the BATTERY CASE BLOCK.

5-9. OPENING THE VIDEO PC PCB

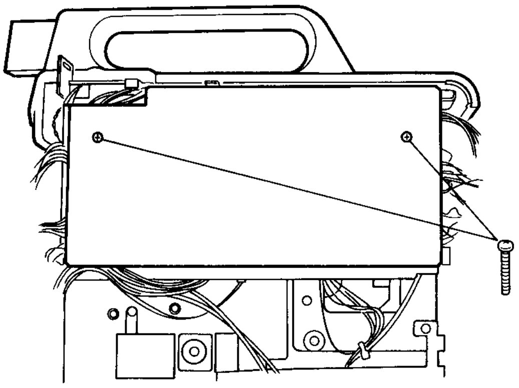


Fig. 5-13

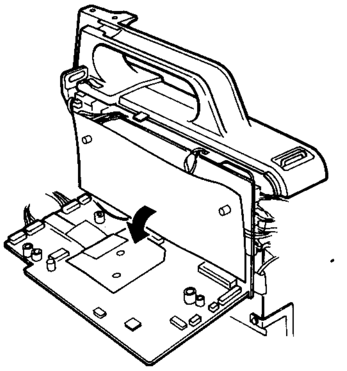


Fig. 5-14

1) Remove two VIDEO PC board fixation screw, then open the VIDEO PC board as shown Fig. 5-14.

5-10. REMOVAL OF THE SSPA PCB AND VIDEO PCB

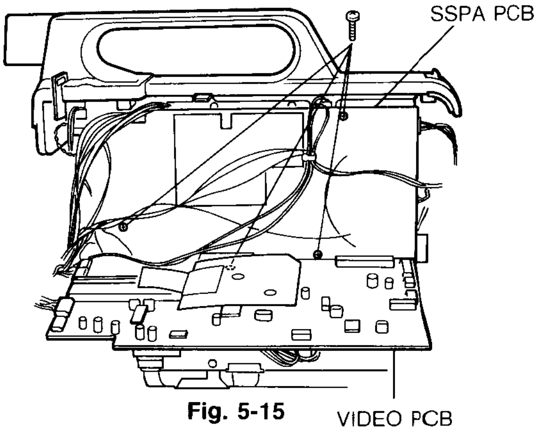


Fig. 5-15

SSPA PCB	VIDEO PCB
N204, N301, N302, N501 N503, N505, N506 to N511 N513 to N515, N901 to N903 N907	N802 to N806

Chart 5-1

1) Remove four SSPA fixation screws.
2) Disconnect the connectors according to Chart 5-1, then pull out the SSPA and VIDEO PC boards.

5-11. REMOVAL OF THE HEAD AMP PCB

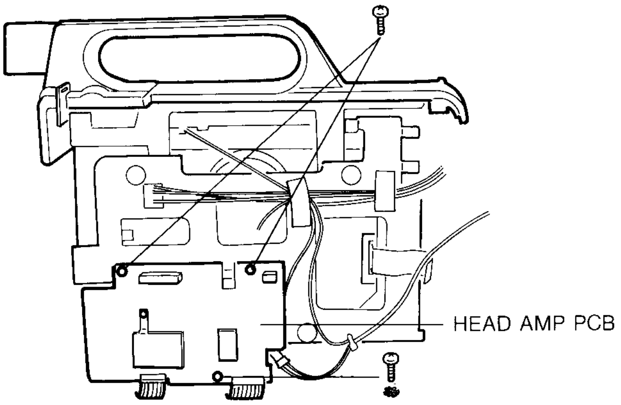


Fig. 5-16

1) Disconnect the connectors N401 and N402 on the HEAD AMP PC board.
2) Remove three HEAD AMP PC board fixation screws, then remove the HEAD AMP PC board.

5-12. REMOVAL OF THE MECHA BLOCK

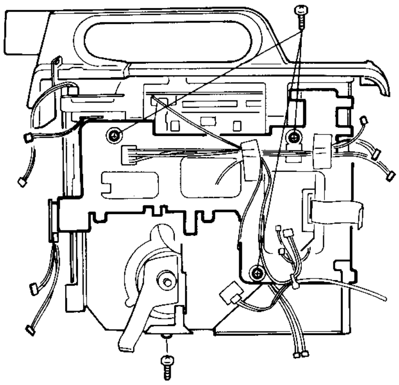


Fig. 5-17

1) Unfasten tie bands, and tapes.
2) Remove four screws, then remove the MECHA BLOCK.

5-13. REMOVAL OF THE CAMERA BLOCK

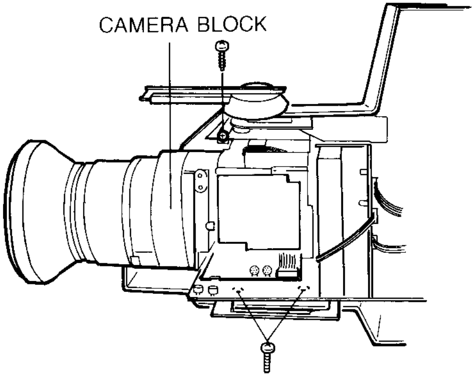


Fig. 5-18

1) Disconnect the connectors N203 and N204 on the PROCESS PC board.
2) Disconnect the connectors N403 and N701 on the AWB PC board.
3) Remove three CAMERA BLOCK fixation screws and pull the CAMERA BLOCK out.
4) Disconnect the connectors N302 and N501 on the AWB PC board, then remove the CAMERA BLOCK.

5-14. REMOVAL OF THE AWB PCB

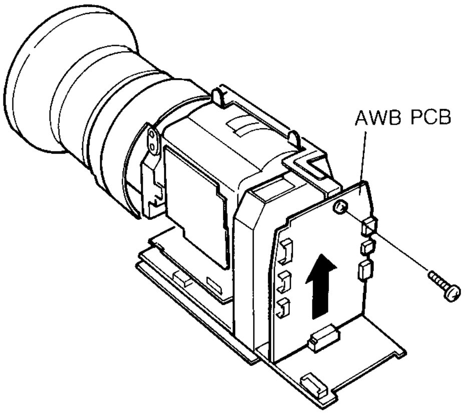


Fig. 5-19

1) Disconnect the connectors N402 and N502 on the AWB PC board.
2) Remove a AWB PC board fixation screw and pull the AWB PC board put arrow marked direction.

5-15. REMOVAL OF THE PROCESS PCB

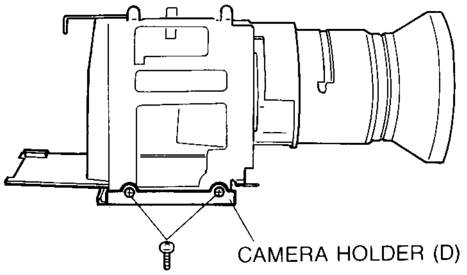


Fig. 5-20

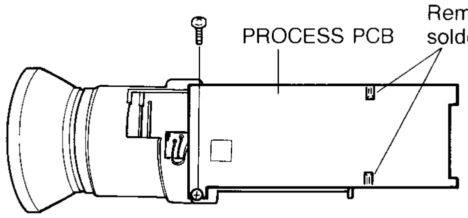


Fig. 5-21

1) Disconnect the connector N208 on the PROCESS PC board.
2) Remove two CAMERA HOLDER (D) fixation screws and remove the CAMERA HOLDER (D).
3) Remove a PROCESS PC board fixation screw and remove solder of the shield case then pull out the PROCESS PC board.

5-16 REMOVAL OF THE CCD PCB BLOCK

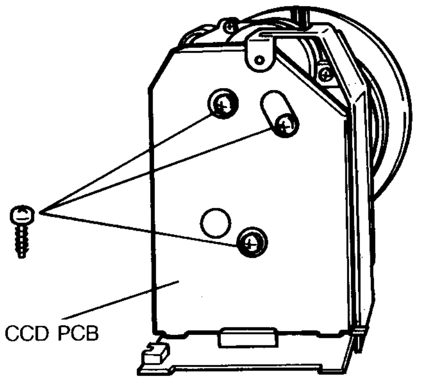


Fig. 5-22

1) Remove shield case.
2) Remove three CCD PC board BLOCK fixation screws and remove the CCD PC board BLOCK.

5-17. REMOVAL OF THE LENS BLOCK

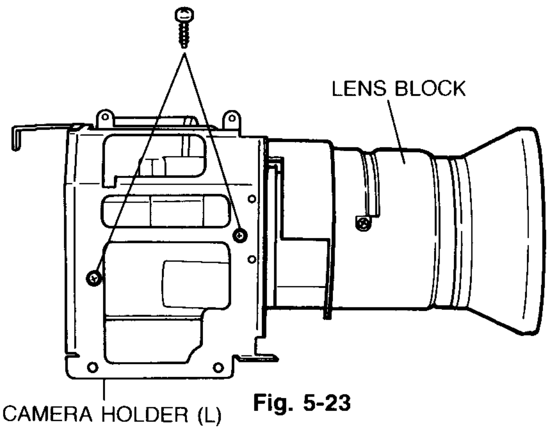

LENS BLOCK
CAMERA HOLDER (L)

Fig. 5-23

1) Remove two CAMERA HOLDER (L) fixation screws and divided the CAMERA HOLDER (L) and LENS BLOCK.

5-18. LOCATION OF THE TIE BANDS AND TAPES

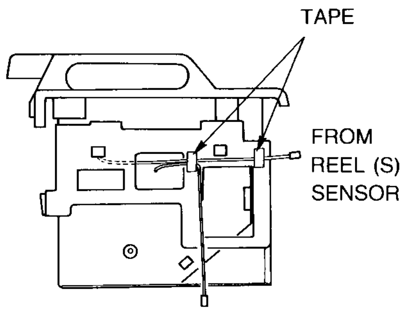

TAPE
FROM
REEL (S)
SENSOR

Fig. 5-24

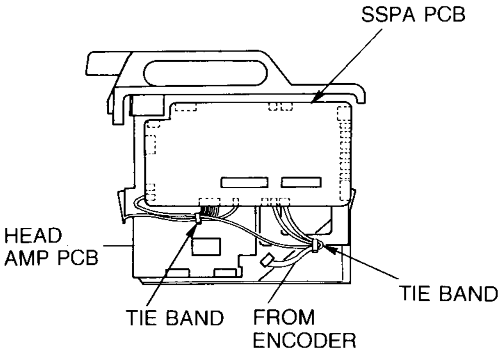

SSPA PCB
HEAD
AMP PCB
TIE BAND
FROM
ENCODER
TIE BAND

Fig. 5-25

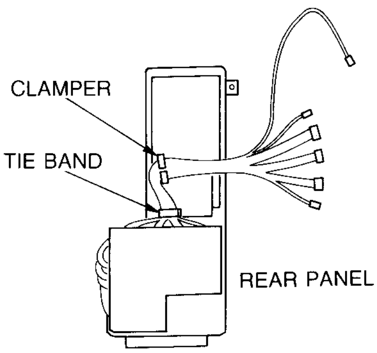

CLAMPER
TIE BAND
REAR PANEL

Fig. 5-26

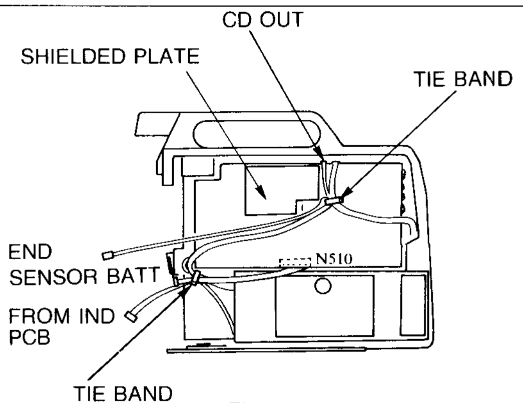

CD OUT
SHIELDED PLATE
TIE BAND
END
SENSOR BATT
N510
FROM IND
PCB
TIE BAND

Fig. 5-27

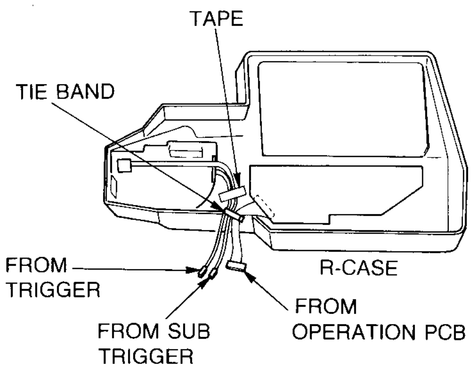
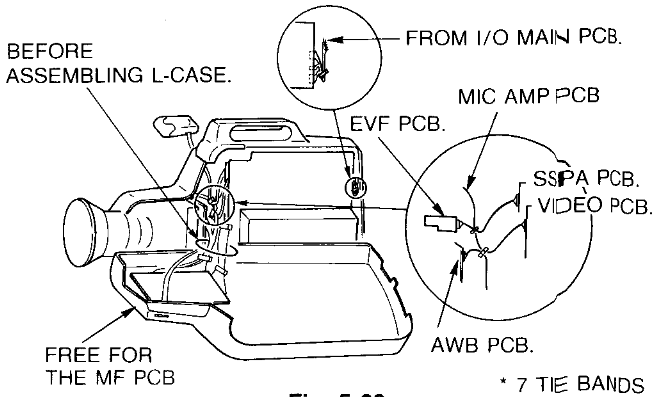

TAPE
TIE BAND
FROM
TRIGGER
R-CASE
FROM
OPERATION PCB
FROM SUB
TRIGGER

Fig. 5-28


FROM I/O MAIN PCB.
BEFORE
ASSEMBLING L-CASE.
MIC AMP PCB
EVF PCB.
SSPA PCB.
VIDEO PCB.
AWB PCB.
FREE FOR
THE MF PCB

* 7 TIE BANDS

Fig. 5-29

VI. REPLACEMENT OF THE PRINCIPAL MECHANICAL PARTS

6-1. REPLACEMENT OF UPPER DRUM

[Removal]

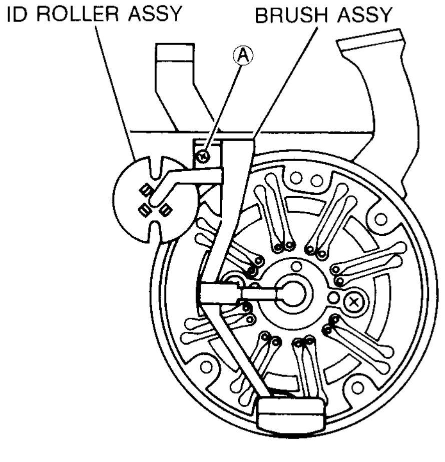

ID ROLLER ASSY
BRUSH ASSY
Ⓐ

Fig. 6-1

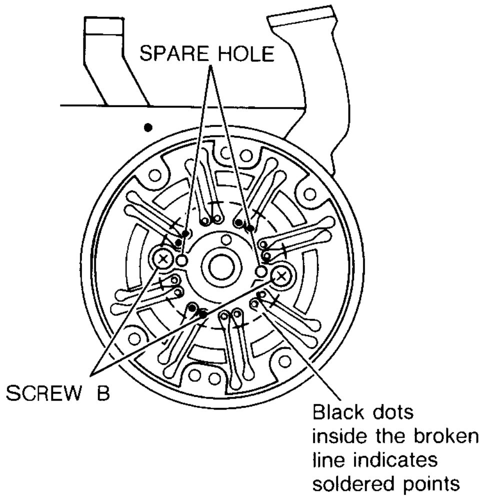

SPARE HOLE
SCREW B
Black dots inside the broken line indicates soldered points

Fig. 6-2

1) Remove the VCR BLOCK according to V. DISASSEMBLY.
2) Remove a BRUSH Assy fixation screw Ⓐ, then remove the BRUSH Assy and ID ROLLER Assy.
3) Remove six points of the solder.
4) Remove two UPPER DRUM Assy fixation screws Ⓑ, then pull out the UPPER DRUM Assy.

Note:
When UPPER DRUM Assy can not be pull out by hand, use the UPPER DRUM Assy fixation screws into the spare holes and turn screws alternately to remove the UPPER DRUM Assy.

[Installation]

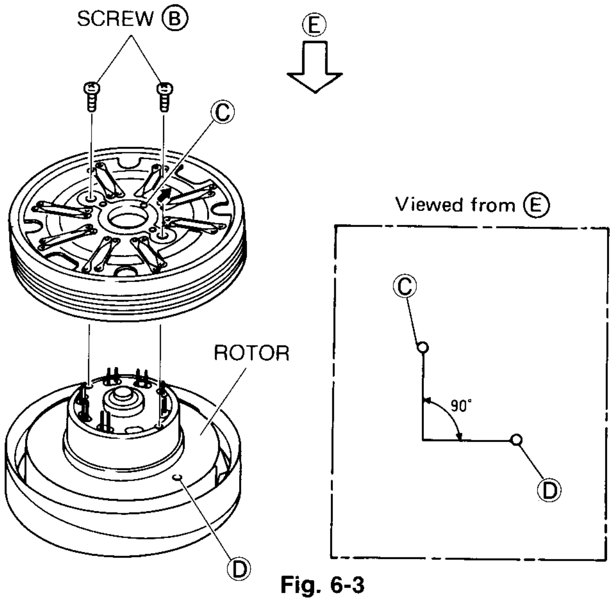

SCREW Ⓑ
Ⓔ
Ⓒ
ROTOR
Ⓓ
Viewed from Ⓔ
Ⓒ
90°
Ⓓ

Fig. 6-3

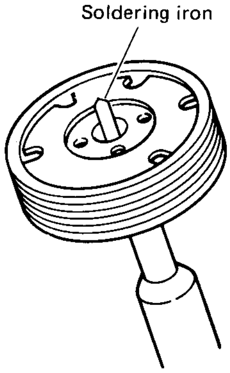

Soldering iron

Fig. 6-4

1) Before install the new UPPER DRUM Assy, clean the contact surface between the UPPER DRUM Assy and the LOWER DRUM Assy.
2) When installing the UPPER DRUM Assy, be sure that the marker Ⓒ is located 90 degrees counter-clockwise direction from marker Ⓓ on the rotor as shown Fig. 6-3.
3) When the UPPER DRUM Assy can not be inserted, use the soldering iron to heat the UPPER DRUM Assy as shown Fig. 6-4 , then insert the UPPER DRUM Assy.
4) Secure the UPPER DRUM Assy fixation screws Ⓑ alternately to same torque and soldering the six points of the leads.

[Confirmation and adjustment]

After replacing the UPPER DRUM Assy, following adjustments are necessary.

1) Interchangeability adjustments.
2) Control head phase(X-rate) adjustment
3) Servo adjustments
4) Video adjustments

6-2. REPLACEMENT OF THE LOWER DRUM MOTOR ASSY

[Removal]

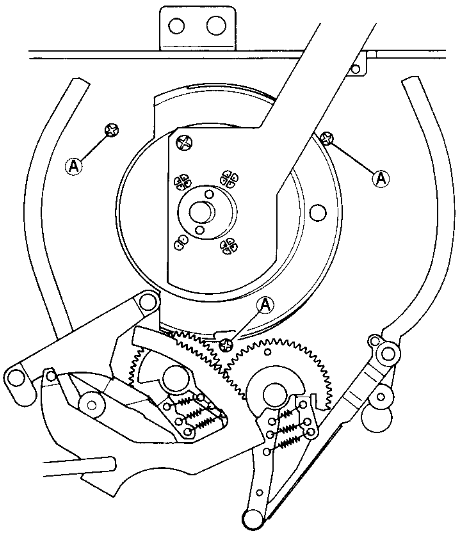


Fig. 6-5

1) Remove the BRUSH Assy(Refer to the 6-1. Replacement of the UPPER DRUM Assy).
2) Remove three LOWER DRUM MOTOR Assy fixation screws Ⓐ, then pull out the LOWER DRUM MOTOR Assy.

[Installation]

1) Reassemble in reverse order of the removal.

[Confirmation and adjustment]

1) Interchangeability adjustment
2) Control head phase(X-rate) adjustment
3) Servo adjustment
4) Video adjustment

6-3. REPLACEMENT OF THE A/C HEAD

[Removal]

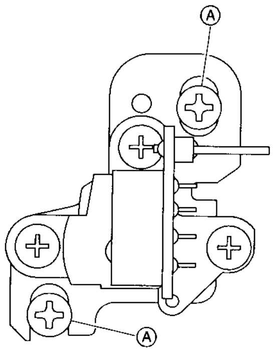


Fig. 6-6

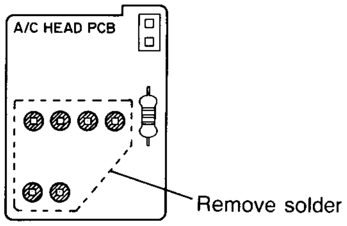


Fig. 6-7

1) Disconnect the connector on the A/C HEAD PCB.
2) Remove two A/C HEAD Assy fixation screws Ⓐ, then remove the A/C HEAD Assy.
3) Remove the solder from six points on the A/C HEAD PCB as shown Fig.6-7.

[Installation]

1) Reassemble in reverse order of the removal.

[Confirmation and adjustment]

1) A/C HEAD adjustment(Azimuth, height and tilt).
2) Control head phase(X-rate) adjustment.
3) Interchangeability adjustment.
4) Servo adjustment

6-4. REPLACEMENT OF THE PINCH ROLLER ASSY

[Removal]

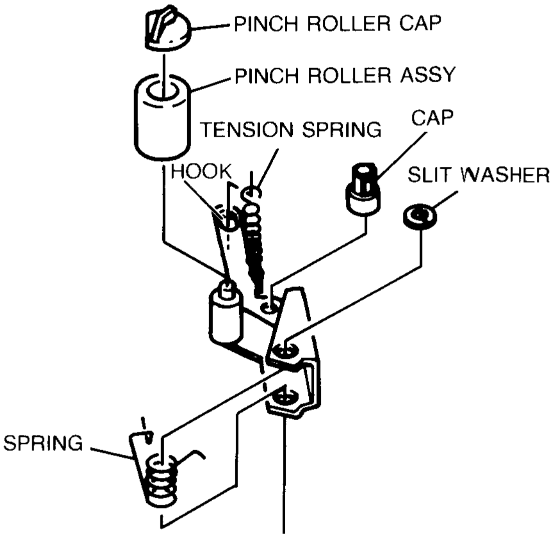


Fig. 6-8

1) Remove the TENSION SPRING from the hook.
2) Remove the CAP and SLIT WASHER, then pull out the PINCH ROLLER ARM Assy to upward.
3) Pull out the PINCH ROLLER CAP, then pull out the PINCH ROLLER Assy from the PINCH ROLLER ARM.

[Installation]

1) Reassemble in reverse order of the removal.

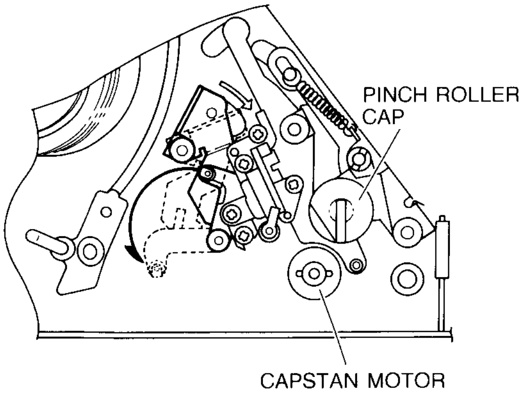

PINCH ROLLER CAP
CAPSTAN MOTOR

Fig. 6-9

2) Install the PINCH ROLLER CAP as shown Fig. 6-9.

6-5. REMOVAL OF THE OTHER MECHANICAL PARTS

[Removal]

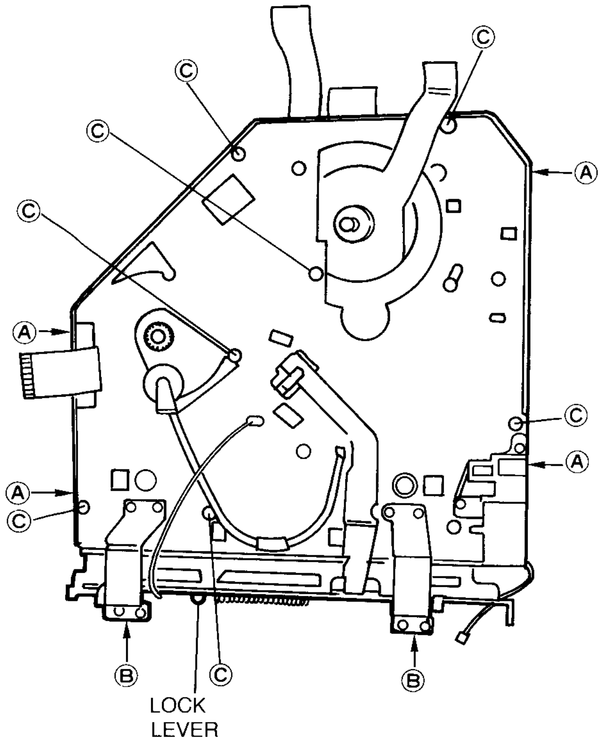


Fig. 6-10

1) Move LOCK LEVER to set the CASSETTE HOUSING eject position.
2) Remove four CASSETTE HOUSING fixation screws Ⓐ, then remove the CASSETTE HOUSING Assy.

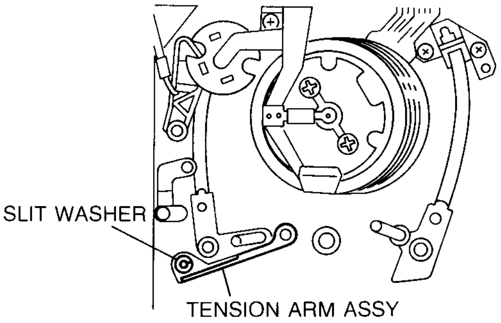

SLIT WASHER
TENSION ARM ASSY

Fig. 6-11

3) Remove the TENSION ARM Assy fixation SLIT WASHER, then pull out the TENSION ARM Assy (Refer to Fig. 6-11).
4) Remove two LOCK Assy fixation screws Ⓑ, then remove the LOCK Assy.
5) Remove seven LOWER MECHA Assy fixation screws Ⓒ, then separate the LOWER MECHA Assy and UPPER MECHA Assy.
6) Under this condition, some other parts can be change by removing the fixation slits washer or screws.

[Installation]

The mechanism of this model is mostly engaged to the mechanism control circuit through the mode sensor.
Therefor, the relation between the mode sensor and the control cam decides all mechanical movements of the mechanical parts such as levers, gears, rollers and so on.
If these parts are not properly positioned, the unit will be compulsorily stopped. This condition will result in damage of the mechanical or electrical parts.

Assembling procedure of the LOWER MECHA Assy

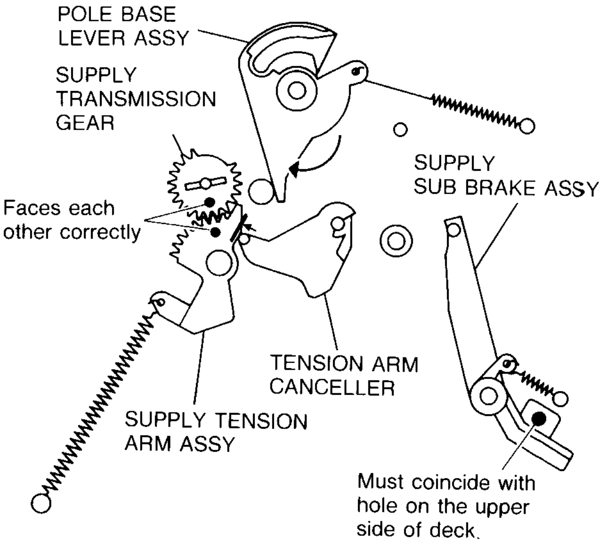

POLE BASE LEVER ASSY
SUPPLY TRANSMISSION GEAR
SUPPLY SUB BRAKE ASSY
Faces each other correctly
TENSION ARM CANCELLER
SUPPLY TENSION ARM ASSY
Must coincide with hole on the upper side of deck.

Fig. 6-12

1) Before assembling, remove the springs shown in Fig. 6-12.
2) Mount the SUPPLY TRANS GEAR and SUPPLY TENSION ARM GEAR so that the align the holes on the both of them as shown in Fig. 6-12.
3) Positioning the POLE BASE Assy, TENSION ARM CANCELLER Assy and SUPPLY SUB BRAKE Assy as shown in Fig. 6-12.

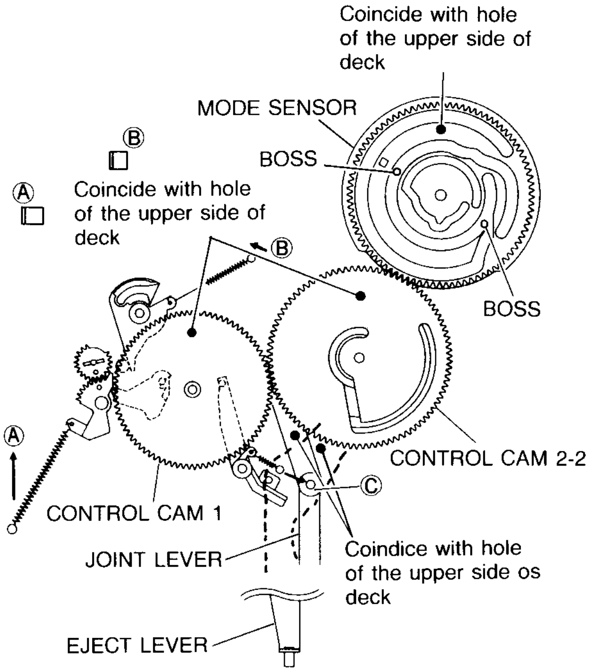

Coincide with hole of the upper side of deck
MODE SENSOR
Ⓑ
BOSS
Ⓐ Coincide with hole of the upper side of deck
Ⓑ
BOSS
Ⓐ
CONTROL CAM 2-2
Ⓒ
CONTROL CAM 1
JOINT LEVER
Coindice with hole of the upper side os deck
EJECT LEVER

Fig. 6-13

4) After positioned above 1) to 3), mount the CONTROL CAM (1) so that the coincide the holes on the CONTROL CAM (1) and LOWER MECHA CHASSIS as shown in Fig. 6-13, then set the slit washer.
5) Mount the MODE SENSOR so that the bottom pins of the MODE SENSOR into the holes of the LOWER MECHA CHASSIS and set it by the slit washer, then coincide the holes on the both MODE SENSOR and LOWER MECHA CHASSIS as shown in Fig. 6-13.
6) Positioning the EJECT LEVER and JOINT LEVER by there holes coincide the holes on the LOWER MECHA CHASSIS, then mount the CONTROL CAM (2-2) so that the hole on the CONTROL CAM (2-2) coincide the hole on the LOWER MECHA CHASSIS as shown in Fig. 6-13 And set the slit washer.
7) Hook up the all springs(A, B, C).
8) Mount the MODE GEAR (2) and CONTROL CAM (1) COVER.

Assembling procedure of the UPPER MECHA Assy and LOWER MECHA Assy

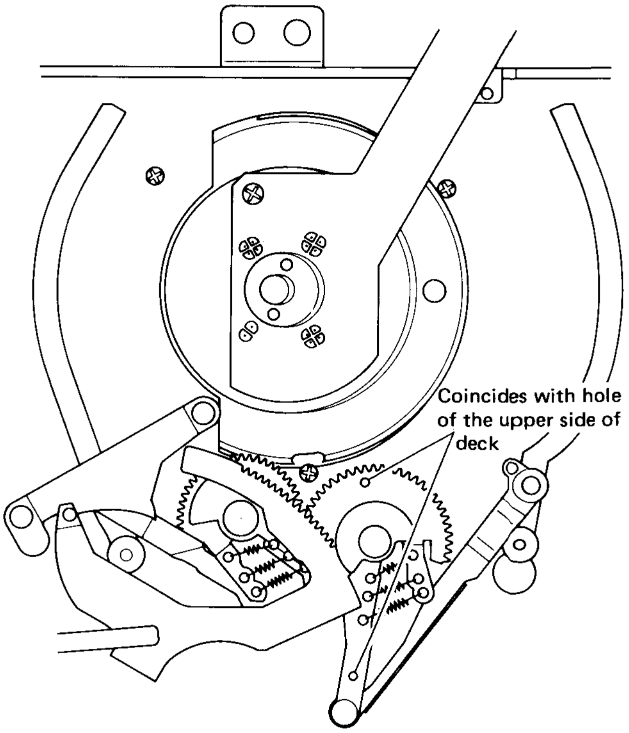

Coincides with hole of the upper side of deck

Fig. 6-14

1) Set the TAKE UP and SUPPLY GUIDE ROLLERS to unloaded position and positioning them by two holes coincide the hole on the UPPER MECHA CHASSIS as shown in Fig. 6-14.

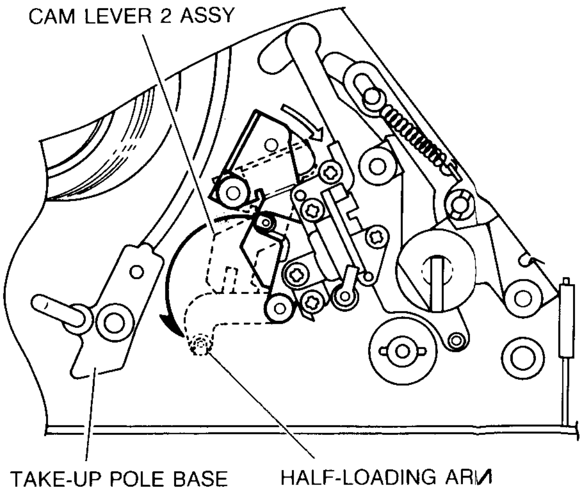

CAM LEVER 2 ASSY
TAKE-UP POLE BASE
HALF-LOADING ARM

Fig. 6-15

2) While positioning the HALF LOADING ARM to right side of the TAKE UP POLE BASE by pushing the CAM LEVER (2), combine the UPPER MECHA Assy and LOWER MECHA Assy.
3) After combined the UPPER and LOWER MECHA Assy, reassemble according to reverse order of the removal procedure.

VII. VCR SECTION ADJUSTMENT

7-1. PREPARATIONS

7-1-1. Special test equipments and tools

Following special test equipments and tools are necessary for VCR section adjustment.

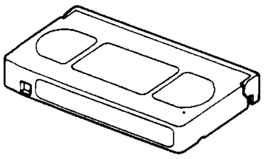
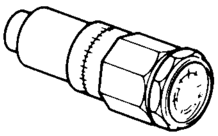
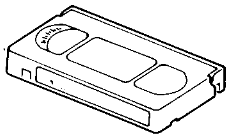
1.Alignment tape	2.Torque gauge	3.Cassette type back-tension gauge
		

Chart 7-1

7-1-2. INSTRUMENT CONNECTION

When adjustment in the VCR section is necessary, remove the VCR section, IND PCB and OPERATION PCB according to the procedure in "V. DISASSEMBLY", then connect the test equipments as shown Fig. 7-1.

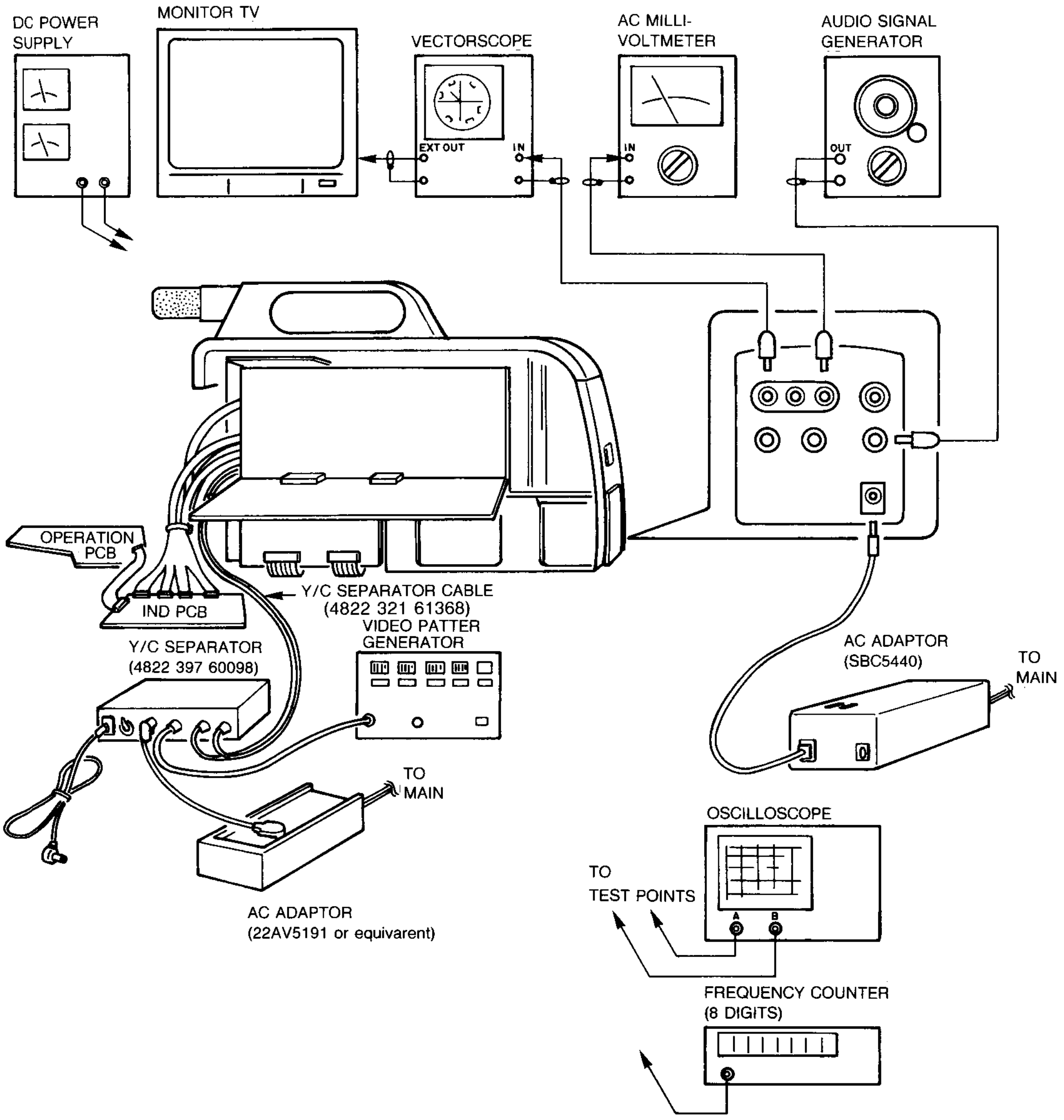

DC POWER SUPPLY
MONITOR TV
VECTORSCOPE
EXT OUT
IN
AC MILLI-VOLTMETER
IN
AUDIO SIGNAL GENERATOR
OUT
OPERATION PCB
IND PCB
Y/C SEPARATOR CABLE (4822 321 61368)
VIDEO PATTER GENERATOR
Y/C SEPARATOR (4822 397 60098)
TO MAIN
AC ADAPTOR (22AV5191 or equivarent)
AC ADAPTOR (SBC5440)
TO MAIN
OSCILLOSCOPE
A
B
TO TEST POINTS
FREQUENCY COUNTER (8 DIGITS)

Fig. 7-1

7-2. MECHANICAL ADJUSTMENT

7-2-1. Confirmation of the back tension

Set the cassette torque meter(4822 395 90615) onto the VCR and measure the back tension and take up tension in PLAY mode.

Tension	Specification	If not within Spec
Back tension	18 to 31 g-cm	Replace BACK TENSION BAND
Take up tension	60 to 100 g-cm	Replace IDLER GEAR UNIT

7-2-2. Tape pattern adjustment

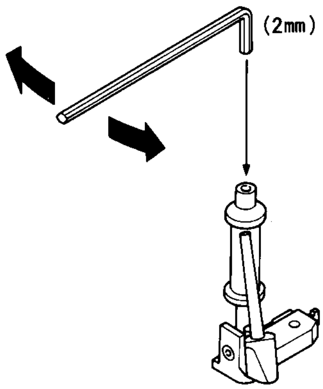


Fig. 7-2

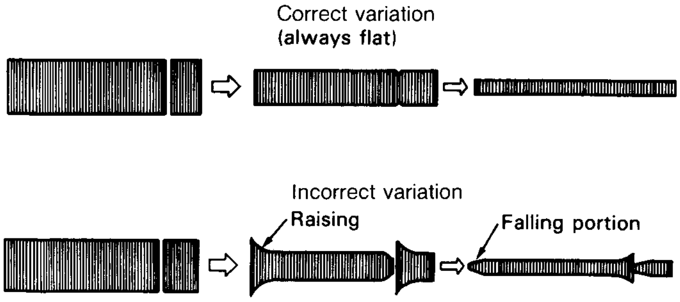


Fig. 7-3

1) Connect the oscilloscope's CH-1 to T408(Video FM) on the HEAD AMP PCB and CH-2 to T501(HP 1) on the SSPA PCB for trigger.
2) Play back a stairstep signal of the alignment tape MH-2(4822 397 30107).
3) Press either + or − TRACKING button to obtain the maximum level of the video FM waveform.
4) Adjust SUPPLY and TAKE UP GUIDE ROLLERS by using the hexagon ranch driver so that the waveform on the oscilloscope becomes flattest and minimum level fluctuations.
5) Press either + or − TRACKING button to changing the video FM waveform level to minimum, at this condition confirm that the video waveform varies nearly in flat sharp.
6) Since relative positions of the guide rollers may possibly change in the course of the adjustment, repeat STOP and PLAY mode several times and confirm that the waveform levels will not changed.

7-2-3. A/C HEAD adjustment

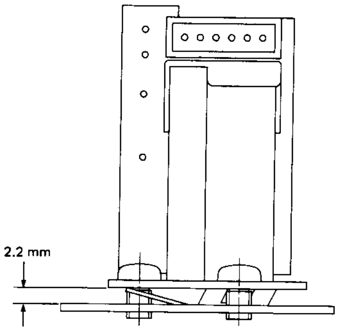


Fig. 7-4

1) When replaced the A/C HEAD, make rough adjustment of the height as shown Fig. 7-4.
2) Play back the 7 kHz segment of alignment tape MH-2 (4822 397 30107).

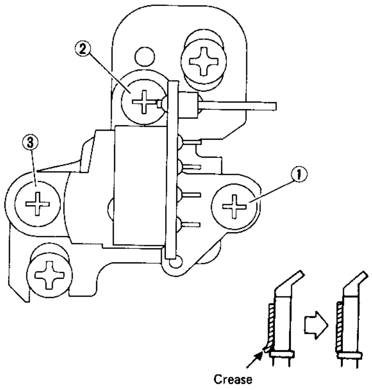


Fig. 7-5

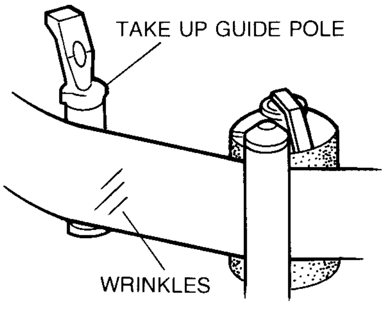


Fig. 7-6

3) Turn the screw ① counter-clockwise so that the small tape wrinkles apeared near the lower flange of the TAKE UP GUIDE POLE, then turn the screw ① gradually clockwise so that the small tape wrinkles disapeared from lower flange of the TAKE UP GUIDE POLE.
4) Connect the oscilloscpe to AUDIO OUT terminal, then adjust screw ② for maximum audio output level on the oscilloscope and fine adjust screw ① for minimum audio level fluctuations.

7-2-4. PHASE OF THE CONTROL HEAD ADJUSTMENT

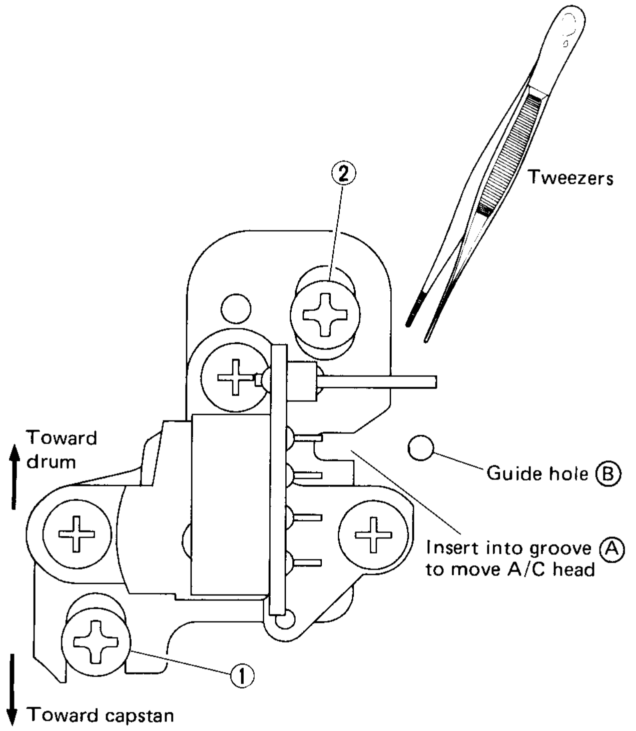


Fig. 7-7

1) Connect the oscilloscope's CH-1 to T408(Video FM) o the HEAD AMP PCB, CH-2 to AUDIO OUT and E TRIGGER to T501(HP 1) on the SSPA PCB for trigger.
2) Playback the stairstep of the alignment tape MH-2 (4822 397 30107).
3) Press both + and − TRACKING button smiltanuouslly and press PAUSE/STILL button while the auto tracking LED is flashing. Then press PLAY button.
4) Slightly loosen the screws ① and ② and insert the tips of the tweezers to notch Ⓐ and guide hole Ⓑ to move the A/C HEAD fully in the direction of the capstan.
5) Gradually move the A/C HEAD toward the DRUM to find the position where the video FM waveform level becomes maximum for first time.
6) Tighten the screws ① and ② at the first point of the video FM waveform level becomes maximum.
7) At this time, confirm that the audio signal level becomes at maximum and minimum fluctuation. (Refer to 7-2-3. AC HEAD adjustment).
8) Press either + or − TRACKING button and confirm t the video FM waveform level is not increase.

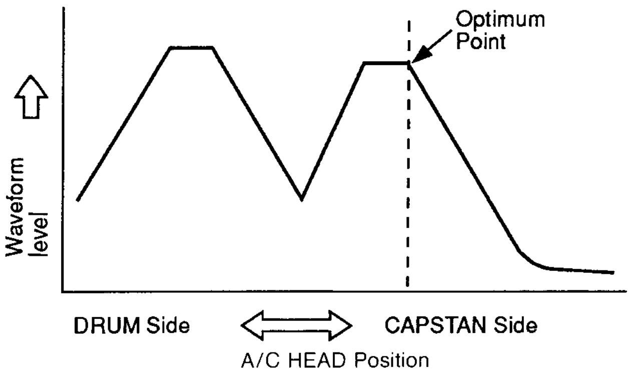


Fig. 7-8

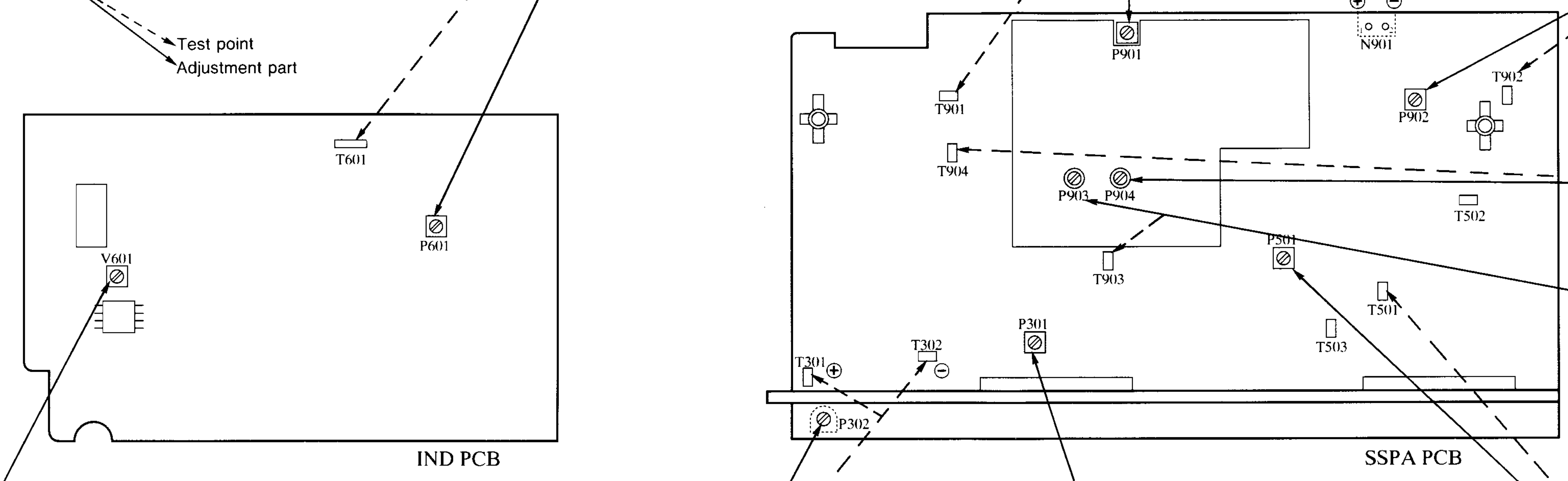
7.3 SSPA PCB AND IND PCB ADJUSTMENT

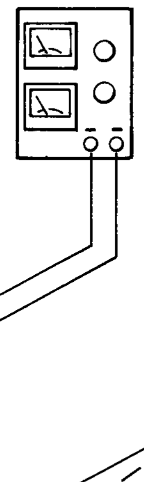
Note :

1) VIDEO OUT must be terminated with 75 ohms dummy or TV monitor.
2) Pay special attention to the test points and potentiometers, they are very small and easy to be destroyed.
3) 0 dBs = 0.775V
4) How to set into the monitor mode
   Press REC button while pressing the STOP button.

Step	Adjustment item
	1. Input signal/test tape 2. Mode 3. Test point 4. Adjustment part 5. result and remarks

Test point
Adjustment part





1	Power reference voltage

1. -------
2. STOP mode
3. T901
4. P901
5. * Disconnect the connector N901 and supply DC 12.0 + 0.5 V to the connector N901 from DC power supply.
   * Connect the DC digital voltmeter to T901 and GND, then adjust P901 so that the reading voltage on the DC digital voltmeter becomes 5.1 V ±50 mV.

2	5V REG

1. ---------
2. STOP
3. T903
4. P903
5. * Connect the DC voltmeter to T903 and adjsut P903 so that the reading on the DC voltmeter becomes 5.3±0.05V.

3	9V REG

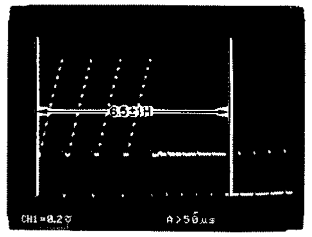
1. ---------
2. STOP
3. T904
4. P904
5. * Connect the DC voltmeter to T904 and adjust P904 so taht the reading on the DC voltmeter becomes 9.25±0.05V.

4	Power warning level

1. ---------
2. REC PAUSE
3. T902
4. P902
5. * Disconnect the connector N901 and supply DC 10.8 V ±50 mV to both terminals of N901 from the DC power supply.
   * Connect the oscilloscope to T902 and GND, and set into REC PAUSE mode.
   * Turn the P902 so that the "H"(5 V) appeared at T902, then gradually turn the P902 counter-clockwise to reduce the voltage at T902, and adjust P902 at point the voltage changed to "L"(0 V).
   * Set DC power supply output voltage to 11 V, then gradually reduce the voltage and confirm that the voltage at T902 will changed when output voltage of the DC power supply is 10.8 V.

5	PB switching point

1. Alignment tape MH-2(4822 397 30107)
2. PLAY mode
3. T804(VIDEO PCB)
4. P501
5. * Connect the oscilloscope's CH-1 to T804(Video out) on the VIDEO PCB and CH-2 to T501(HP 1) on the SSPA PCB for trigger.
   * Play back the stairstep of the alignment tape MH-2, and confirm that the auto tracking LED will lit.
   * While keeping the PLAY button pressed, adjust P501 so that the trigger point is 6.5 H before the fall point of V-sync signal.



6	Audio bias level

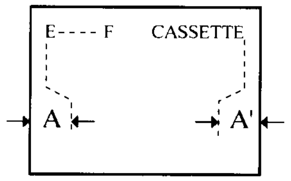
1. ---------
2. REC mode
3. T301 and T302
4. P302
5. * Connect AC milli-voltmeter between T301 and T302.
   * Adjust P302 so that the reading on the AC milli-voltmeter becomes 2.2 mV.

7	Audio PB level

1. 1kHz, −8 dBs to AUDIO IN
2. REC and then PLAY mode
3. AUDIO OUT
4. P301
5. * Connect audio generator to AUDIO IN and AC milli-voltmeter to AUDIO OUT.
   * Record 1kHz, −8 dBs and play back it, then adjust P301 until record and play back level becomes −6 dBs.

8	Character position

1. ---------------
2. MONITOR mode(Refer to NOTE 4)
3. EVF screen
4. V601
5. * Adjust V601 so that the both left and right side spaces A and A' in the EVF are equal.



Viewfinder Screen

9	VCM 5V

1. ---------
2. REC PAUSE
3. T601
4. P601
5. * Connect the DC digital voltmeter to T601.
   * Adjust P601 so that the reading on the DC digital voltmeter becomes 4.9 V.

7-4. HEAD AMP PCB and VIDEO PCB adjustment

Note :

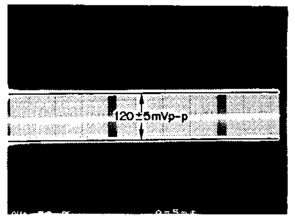
1) Video out must be terminated with 75 ohms dummy or TV monitor.
2) Pay special attention to the test points and potentiometers, they are very small and easy to be destroyed.

Step	Adjustment item
1. Input signal/test tape 2. Mode 3. Test point 4. Adjustment part 5. result and remarks	

Test point
Adjustment point

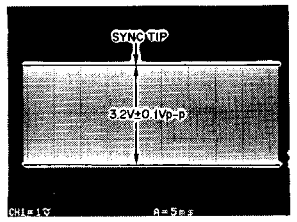
1 CHROMA REC LEVEL

1. Colour bar signal
2. REC mode
3. T409
4. P403
5. * Connect the oscilloscope's CH-1 to T409 and CH-2 to T501 on the SSPA PCB for trigger.
   * Adjust P403 so that the level of the waveform becomes 120 ±5 mVp-p.



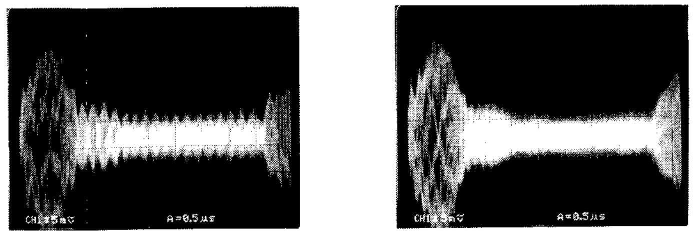
2 FM(Y) REC LEVEL

1. Colour bar signal
2. REC mode
3. T407
4. P401
5. * Connect the oscilloscope's CH-1 to T407 and CH-2 to T501 on the SSPA PCB for trigger.
   * Adjust P401 so that the waveform on the oscilloscope becomes 3.2 ±0.1 Vp-p.



10 CARRIER BALANCE

1. Colour bar signal
2. REC PAUSE
3. T107
4. P101
5. * Connect the oscilloscope's CH-1 to T107 and CH-2 to T808 for trigger.
   * Set the oscilloscopie's CH-1 to "X10" mode.
   * Adjust P101 so that the minimum composition of 5.06 MHz as shown.



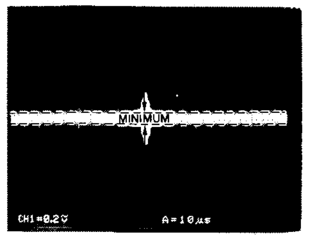
INCORRECT CORRECT

8 4.43MHz VXO

1. Colour bar test tape(MH-2)
2. PLAY mode
3. T106
4. V101
5. * Connect the frequency counter to T106 and playback the colour bar test tape.
   * Adjust V101 so that the reading on the frequency counter becomes 4.433618 MHz ±10 Hz.

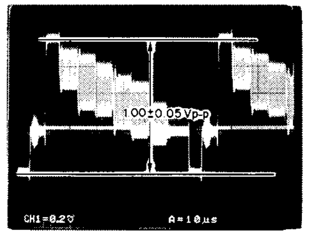
7 LNC LEVEL

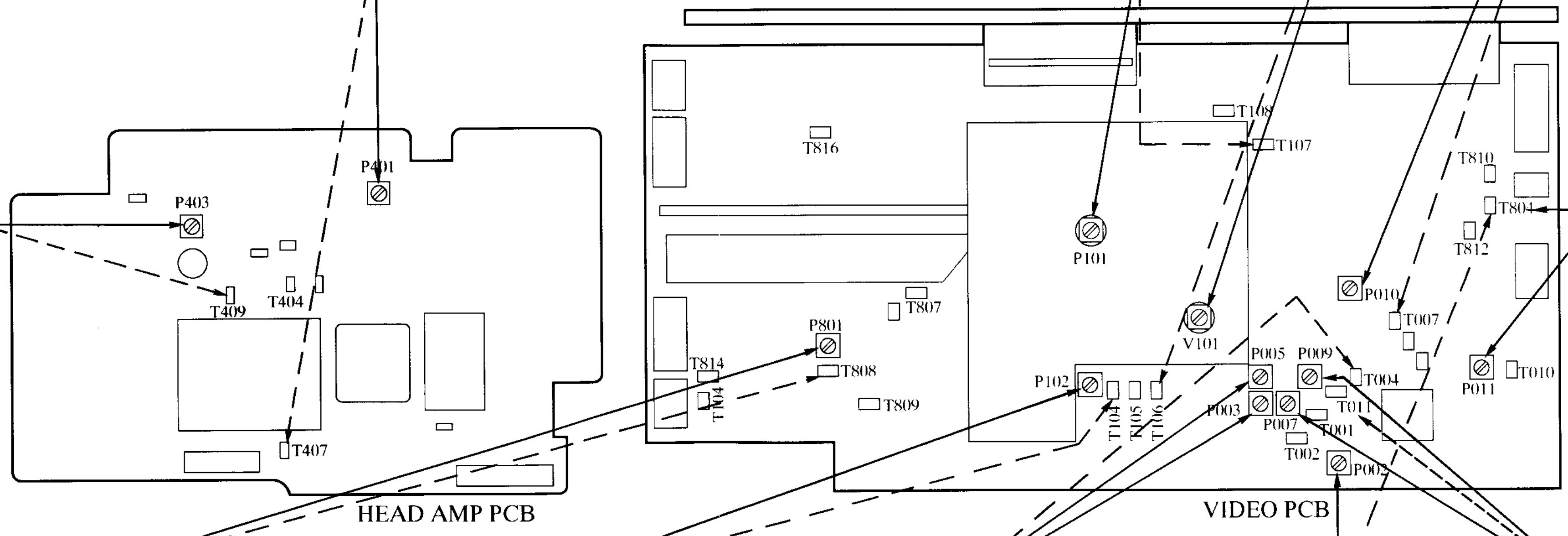
1. Colour bar test tape(MH-2)
2. PLAY mode
3. T007
4. P010
5. * Connect the oscilloscope's CH-1 to T007 and CH-2 to T808 on the VIDEO PCB for trigger.
   * Playback the colour bar test tape(MH-2) and adjust P010 so that the level of the waveform becomes minimum.



3 Y EE LEVEL

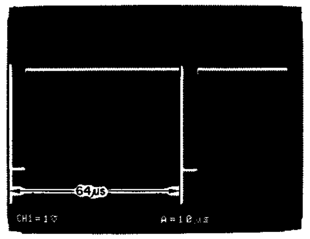
1. Colour bar signal
2. REC PAUSE mode
3. T804
4. P011
5. * Connect the oscilloscope's CH-1 to T804 and CH-2 to T808 on the VIDEO PCB for trigger.
   * Adjust P011 so that the level of waveform becomes 1.00 ±0.05 Vp-p.





11 Hd FREQUENCY

1. Blank tape
2. PLAY mode
3. T808
4. P801
5. * Connect the oscilloscope's CH-1 to T808 and T808 on the VIDEO PCB for trigger.
   * Adjust P801 so that the centre of fluctuating H-sync becomes 64 µS.

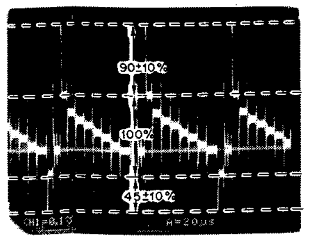


9 CHROMA fH

1. Colour bar signal
2. STOP mode
3. T104
4. P102
5. * Connect the frequency counter to T104.
   * Adjust P102 so that the reading on the frequency counter becomes 15.625 kHz ±10 Hz.

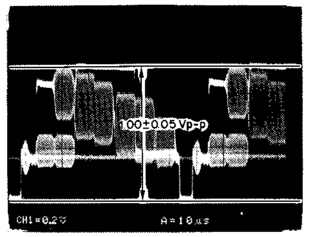
5 WHITE and DARK CLIP

1. Colour bar signal
2. REC PAUSE mode
3. T004
4. P003(White) and P005(Dark)
5. * Connect the oscilloscope's CH-1 to T004 and CH-2 to T808 on the VIDEO PCB for trigger.
   * Adjust P003 and P005 so that the White and dark clip becomes as shown.
     White clip level: 90+10 %
     Dark clip level : 45+10 %



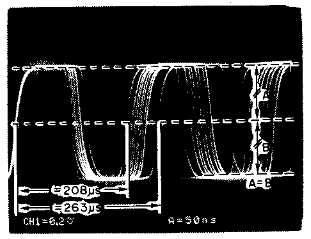
6 PB Y LEVEL

1. Colour bar test tape (MH-2)
2. PLAY mode
3. T804
4. P002
5. * Connect the oscilloscope's CH-1 to T804 and CH-2 to T808 on the VIDEO PCB for trigger.
   * Play back the colour bar test tape (MH-2) and adjust P002 so that the level of the waveform becomes 1.00±0.05 Vp-p.

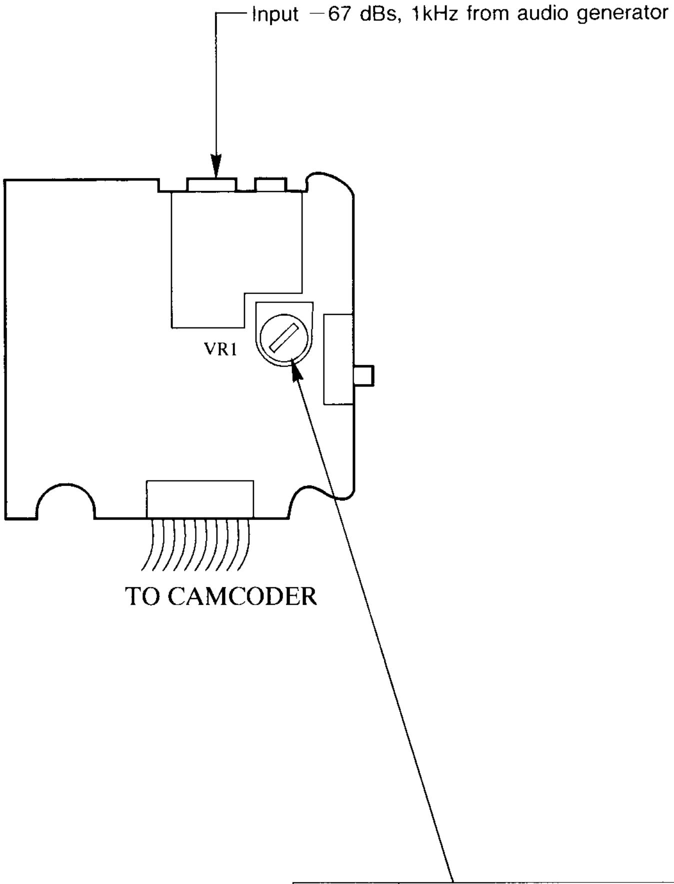


4 CARRIER and DEVIATION

1. Colour bar signal
2. REC PAUSE mode
3. T011
4. P007 and P009
5. * Connect the oscilloscope to T011 and adjust P007 so that the sync tip part becomes 263 µS as shown.
   * Adjust P009 so that the 100% WHITE part becomes 208 µS as shown.



7-5. MIC AMP PCB ADJUSTMENT


Input −67 dBs, 1kHz from audio generator
VR1
TO CAMCODER

1	MIC AMP OUTPUT LEVEL
1. −67 dBs, 1kHz from audio generator. 2. REC 3. AUDIO OUT 4. VR1 5. * Supply −67 dBs, 1kHz audio signal to EXT MIC (MONO) terminal. * Connect the AC milli-voltmeter to AUDIO OUT and adjust VR1 so that the reading on the AC milli-voltmeter becomes −6 dBs.	

VIII. CAMERA SECTION ADJUSTMENT

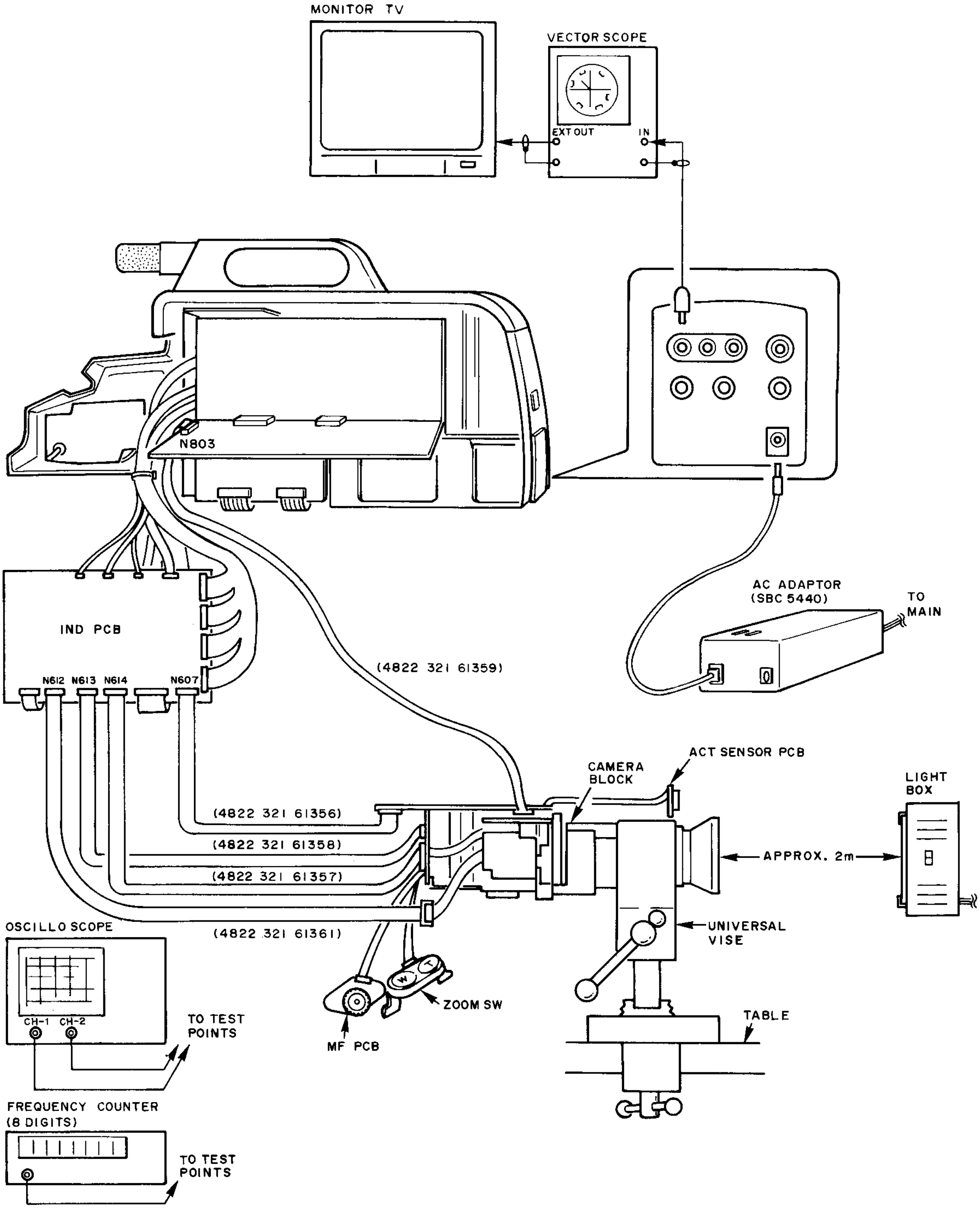
8-1. PREPERATION AND PRECAUTION

1) All adjustment should be performed in a room that shuts out light other than the spcific illumination.
2) For adjustments, set the camera to the following ooperation mode, unless otherwise specified.

shutter speed : $^{1}/_{50}$ sec (No indication on EVF screen)
white balance : INDOOR
Iris : Centre
Focus : Auto

8-2. INSTRUMENTS CONNECTION

When adjustment in the CAMERA section is necessary remove the CAMERA section according to the procedure in "V DISASSEMBLY", then connect the test equipments and VCR section by using the extension cables.

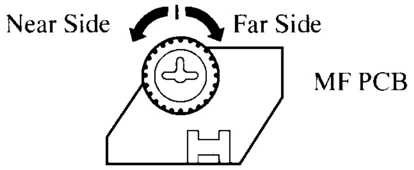

MONITOR TV
VECTOR SCOPE
EXT OUT
IN
N803
IND PCB
N612 N613 N614
N607
(4822 321 61359)
AC ADAPTOR
(SBC 5440)
TO MAIN
ACT SENSOR PCB
CAMERA BLOCK
LIGHT BOX
(4822 321 61356)
(4822 321 61358)
APPROX. 2m
(4822 321 61357)
OSCILLO SCOPE
(4822 321 61361)
UNIVERSAL VISE
CH-1 CH-2
TO TEST POINTS
ZOOM SW
TABLE
MF PCB
FREQUENCY COUNTER
(8 DIGITS)
TO TEST POINTS

8-3. AF, ETF AND CCD PCB ADJUSTMENT

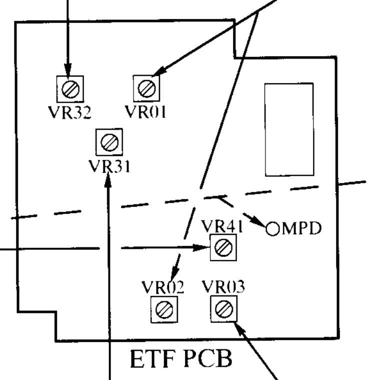
Note:

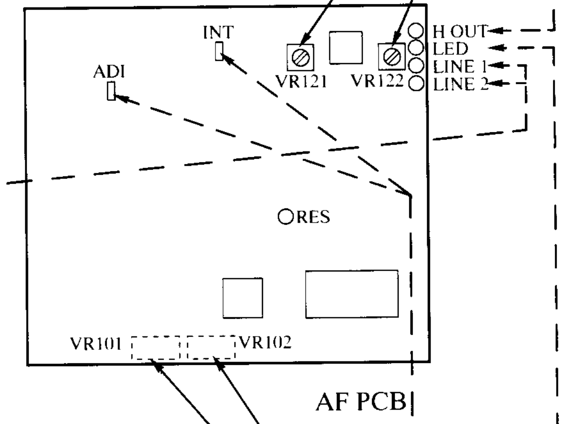
1. How to set the MANUAL FOCUS control.

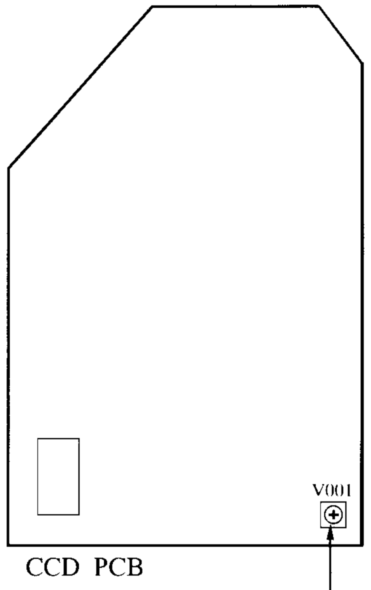
Near side :	Turn the MANUAL FOCUS control three turns to counter-clockwise.
Far side :	Turn the MANUAL FOCUS control three turns to clockwise.



2. How to set into the monitor mode
   Press the REC button while pressing the STOP button.







1 ZOOM VOLTAGE

1. -------
2. Monitor mode
   Focus : MANUAL
3. "LED" terminal(AF PCB)
4. VR31(ETF PCB)
5. * Connect the DC voltmeter to "LED" terminal and set the zoom to fully TELE side.
   * Turn the VR31 counter-clockwise so that the reading on the DC voltmeter becomes low("L"), then gradually turn the VR31 clockwise and set the VR31 at the reading DC voltmeter just changed to high("H").
   * Set the zoom to fully WIDE side and confirm that the reading voltage becomes high("H").

2 IRIS

1. --------
2. Monitor mode
3. "H OUT" terminal(AF PCB)
4. VR121 and VR122(AF PCB)
5. * Connect the DC voltmeter to "H OUT" terminal.
   * Repeat IRIS open and close for several times, then adjust VR121(open side) and VR122(close side).

   IRIS fully open : 3.3 ±0.04 V
   IRIS fully close: 1.7 ±0.04 V

3 BACK FOCUS

1. Object at a distance of 3 m or more
2. Monitor mode
   Zoom: Fully TELE and fully WIDE, Focus: MANUAL
3. Monitor screen
4. VR03(AF PCB)
5. * Set the zoom to fully TELE side and adjust manual focus so that the picture on the TV screen becomes most clear.
   * Set the zoom to fully WIDE side and adjust VR03 so that the picture on the TV screen becomes most clear.
   * Alternately repeat above adjustments until best pictures are obtained when zooming to both TELE and WIDE ends.

4 MACRO

1. A small object
2. Monitor mode
   Zoom : Fully WIDE side, Focus : MANUAL, Manual focus control:
   Near side(refer to NOTE 1)
3. Monitor screen
4. VR32(ETF PCB)
5. * Set the chroma chart at the 30 ±15 mm front of the lens.
   * Adjust VR32 so that the picture on the monitor screen becomes most clear.

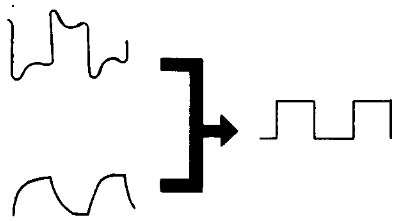
Note:
After this adjustment, confirm the Step 3 BACK FOCUS again.

5 TRACE

1. Resolution chart
2. Monitor mode
   Zoom : Fully TELE side, FOCUS : MANUAL, Manual focus control :
   Near side(refer to NOTE 1)
3. Monitor screen
4. VR01 and VR02(ETF PCB)
5. * Set the resolution chart at a distance of 1.5 m front of the lens.
   * Adjust VR01 so that the picture on the monitor screen becomes most clearly.
   * Move the zoom to WIDE side a little, then adjust VR02 so that the picture on the monitor screen becomes most clearly.
   * Alternately repeat above adjustments several times to obtain the best result in both.

6 DAMPER

1. --------
2. Monitor mode
   Zoom : Fully TELE side, Focus : MANUAL, Manual focus control : center
   (1 turn from near side)
3. "MPD" terminal(ETF PCB)
4. VR41(ETF PCB)
5. * Connect the "LINE 1" and "LINE 2" terminals to ground, then connect the "RES" terminal to ground once in a while.
   * Connect the oscilloscope to "MPD" terminal on the ETF PCB and set the oscilloscope to x10 mode, then adjust VR41 so that the waveform on the oscilloscope becomes square wave without any ringing or sag.

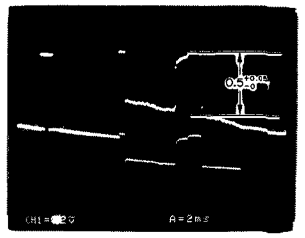


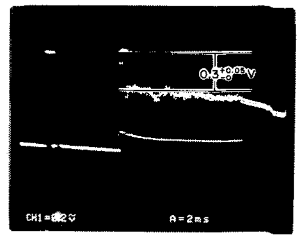
7 MASTER OSC

1. -----
2. Monitor mode
3. T218 (PROCESS PCB)
4. V001
5. * Connect the frequency counter to T218 and adjust V001 so that the reading on the frequency counter becomes 13.5 MHz ±70 Hz

27 AF GAIN

1. DIC-547 chart(Set the chart at 3 m in front of the lens and lighting is approx. 500 lux)
2. Monitor mode
   Zoom : Fully TELE side, Focus : AUTO
3. ADI
4. VR102(Low) and VR101(High)
5. * Connect the oscilloscope's CH-1 to ADI and CH-2 to INT for trigger.
   * Aim the camera so that the small gray and white marker on the DIC-547 chart is located center of the auto focus frame in the EVF, then adjust VR102 so that the level of the waveform on the oscilloscope becomes 0.5$^{+0.05}_{-0}$.
   * Aim the camera so that the border of large gray and white on the DIC-547 chart is located center of the auto focus frame in the EVF, then adjust VR101 so that the level of the waveform on the oscilloscope becomes 0.3$^{+0.05}_{-0}$.

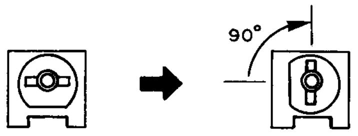




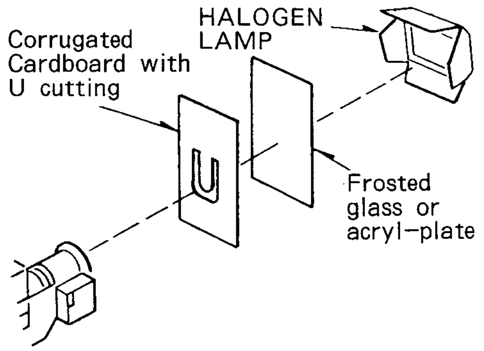
8-4. PROCESS AND AWB PCB ADJUSTMENT

Notes:

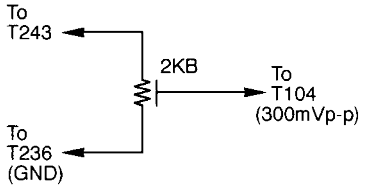
1. Before adjustment set the P202 and P203 as shown below.



2. Blind the lighting using frosted glass or acryl plate to diffuse incoming light.
   And also put a corrugated cardboard which inside is cut to "U" shape as shown below.

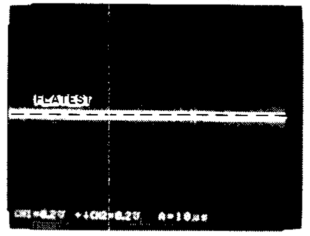

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl-plate

3. How to set the AGC on and off.
   AGC on : Press FULL AUTO button.
   AGC off : Press either + or − IRIS button once and press other side of − or + IRIS button once again to setting the IRIS centre(IRIS indication appearing in the EVF screen).
4. In step 15, the following buffer circuit necessary to this adjustment, build a following circuit and adjust the potentiometer so that the center of the potentiometer level becomes 300m Vp-p.


To T243
2KB
To T104 (300mVp-p)
To T236 (GND)

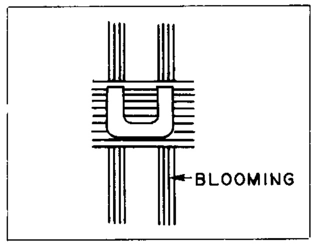
13 Yh DELAY LEVEL

1. Gray scale
2. Monitor mode
3. T102, T103 and T106
4. P101 and P104
5. * Connect the oscilloscope's CH-1 to T102 and CH-2 to T103, then set the oscilloscope to "ADD" and CH-2 to "INVERT" mode.
   * Adjust P101 so that the blanking level and black level on the oscilloscope becomes equal level.
   * Change the oscilloscope's CH-2 to T106 and adjust P104 so that the blanking level and black level on the oscilloscope becomes equal level.


FLATEST
CH1=0.2V +CH2=0.2V A=10μs

8 BLOOMING

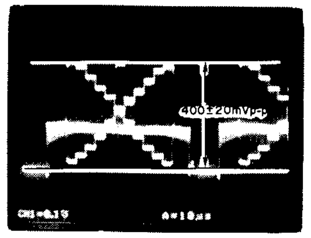
1. Refer to NOTE 2
2. Monitor mode
   IRIS: Fully open
3. Monitor screen
4. P201
5. * Adjust P201 so that the point at the blooming just disappeared.
   * Confirm that the picture on the monitor screen does not contained blooming in the each shutter speed.



Monitor screen

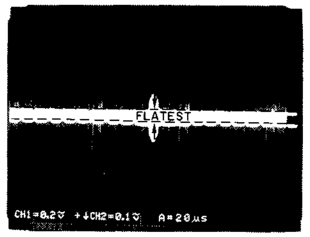
12 AGC GAIN and OFF-SET

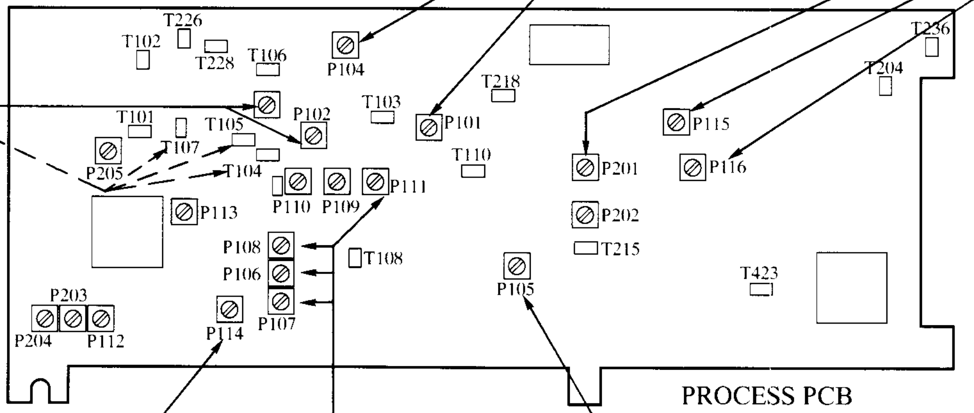
1. Gray scale
2. Monitor mode
   AGC: OFF and ON(Refer to NOTE 3)
3. T102
4. P116 and P115
5. * Connect the oscilloscope to T102 and set the AGC to OFF, then adjust P116 so that the level of waveform becomes 400 ±20 mVp-p.
   * Set the AGC to ON and adjust P115 so that the level of waveform becomes 400 ±20 mVp-p.


400±20mVp-p
CH1=0.1V A=10μs

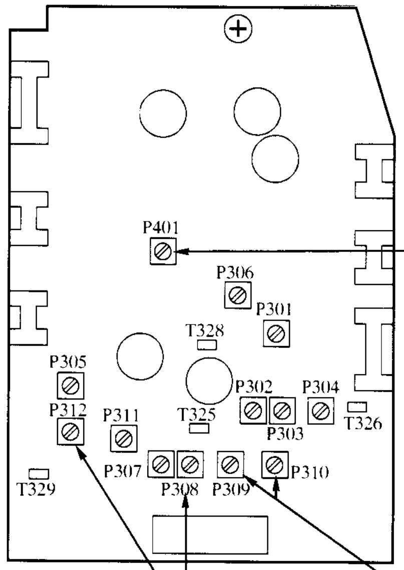
15 CHROMA 1H/2H DELAY LEVEL

1. -----
2. Monitor mode
3. T104, T107 and T105
4. P103 and P102
5. * Connect a buffer circuit between T243, T236 and T104(Refer to NOTE 4).
   * Connect the oscilloscope's CH-1 to T104 and CH-2 to T107, then set the oscilloscope to "ADD" and CH-2 to "INVERT" modes.
   * Adjust P103 so that the blanking level and black level on the oscilloscope becomes equal level.
   * Change the oscilloscope's CH-2 to T105 and adjust P102 so that the blanking level and balck level on the oscilloscope becomes equal level.
   * Remove the buffer circuit


FLATEST
CH1=0.2V +CH2=0.1V A=20μs


T226
T102
T228
T106
P104
T218
T236
T204
T101
T105
P102
T103
P101
T107
T104
P205
P113
P110
P109
P111
T110
P201
P202
T215
P115
P116
P108
P106
P107
T108
P105
T423
P203
P204
P112
P114

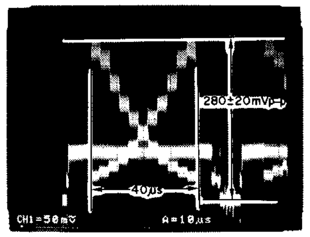
PROCESS PCB


P401
P306
P301
T328
P305
P312
P311
T325
P302
P304
P303
T326
P307
P308
P309
P310
T329

AWB PCB

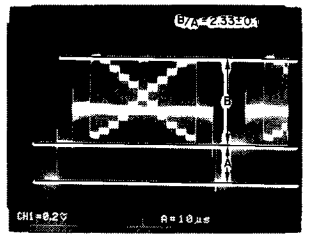
11 IRIS

1. Gray scale
2. Monitor mode
3. T215
4. P401
5. * Connect the oscilloscope to T215 and adjust zoom switches so that the picture frame on the oscilloscope becomes 40 μS as shown.
   * Adjust P401 so that the level of waveform becomes 280 ±20 mVp-p.


280±20mVp-p
40μS
CH1=50mV A=10μs

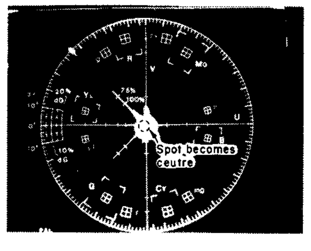
14 Yh LEVEL

1. Gray scale
2. Monitor mode
3. T226
4. P114
5. * Connect the oscilloscope to T226 and adjust P114 so that ratio of the sync and signal levels becomes 1 : 2.33 ±0.1.


B/A=2.33±0.1
CH1=0.2V A=10μs

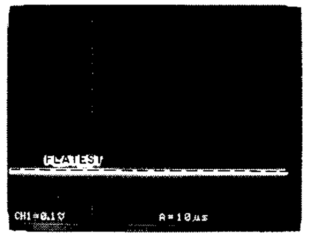
16 CARRIER BALANCE and BLACK LEVEL

1. ----
2. Monitor mode
   IRIS: Fully closed
3. VIDEO OUT
4. P107, P108, P106 and P111
5. * Connect the jumper wire between T110 and T204.
   * Adjust gain control on the vectorscope so that the burst is on the circle line.
   * Adjust P107 and P108 alternately so that the spot on the vectorscope becomes centre of the screen.
   * Disconnect the jumper wire between T110 and T204, then adjust P106 and P111 alternately so that the spot becomes centre of the screen.


Spot becomes centre

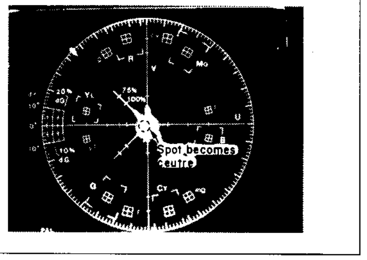
10 PEDESTAL LEVEL

1. -------
2. Monitor mode
   IRIS: Fully closed
3. T101
4. P105
5. * Connect the oscilloscope to T101 and adjust P105 so that the blanking level and black level becomes equal level.


FLATEST
CH1=0.1V A=10μs

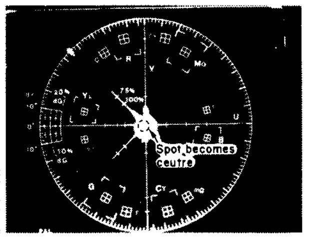
18 OUTDOOR WHITE BALANCE

1. White (Light box)
2. Monitor mode
   White balance: OUTDOOR
3. VIDEO OUT
4. P308 and P312
5. * Connect the jumper wire between T329, T325, T326 and T328.
   * Adjust gain control on the vectorscope so that the burst is on the circle line.
   * Insert the colour conversion filter(80C+80D) in front of the lens.
   * Adjust P308 and P312 so that the spot on the vectorscope becomes centre of the screen.


Spot becomes centre

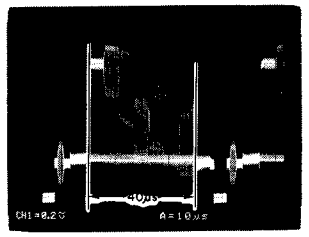
17 INDOOR WHITE BALANCE

1. White (Light box)
2. Monitor mode
   White balance: INDOOR
3. VIDEO OUT
4. P310 and P309
5. * Connect the jumper wire between T329, T325, T326 and T328.
   * Adjust gain control on the vectorscope so that the burst is on the circle line.
   * Adjust P310 and P309 so that the spot on the vectorscope becomes centre of the screen.

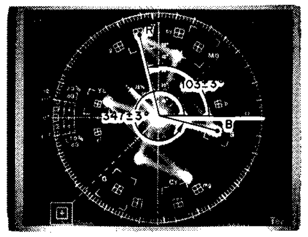

Spot becomes centre

25	R-Y/B-Y GAIN

1. Colour bar
2. Monitor mode
3. VIDEO OUT
4. P110, P109, P112 and P113
5. * Connect the jumper wire between T329, T325, T326 and T328.
   * Adjust the gain control on the vectorscope so that burst gain becomes 75 % position on the screen.
   * Connect the oscilloscope to VIDEO OUT and adjust the ZOOM switch so that the picture frame becomes 40 μS.

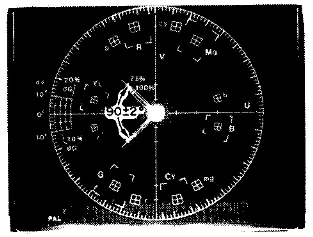

40µS
CH1=0.2V
A=10µs

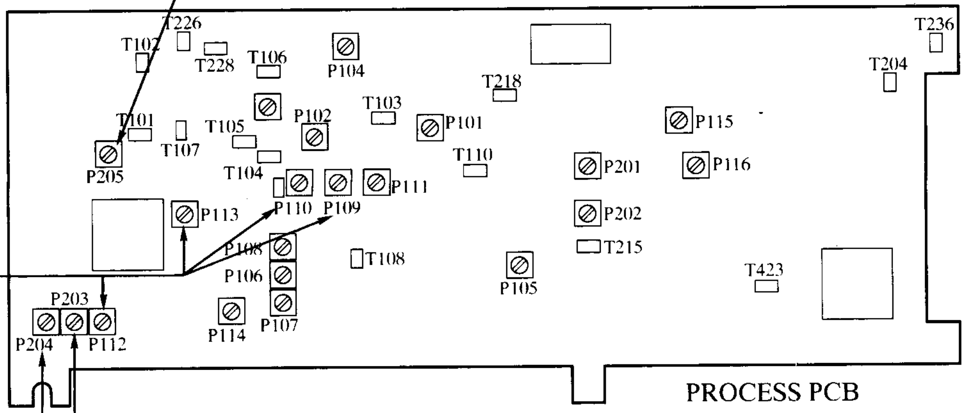
* Adjust P112(R-Y GAIN), P113(B-Y GAIN) and P110(R-Y MATRIX GAIN), P109(B-Y MATRIX GAIN) so that the each colour gain becomes as shown below.



23	BURST PHASE

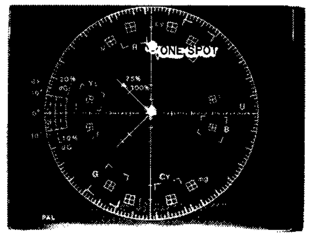
1. ------
2. Monitor mode
   IRIS: Fully close
3. VIDEO OUT
4. P205
5. * Set the vectorscope to "PAL" mode.
   * Adjust P205 so that the angle of burst phase becomes 90° ±2°.




T226
T102
T228
T106
P104
T218
T236
T204
T101
T105
P102
T103
P101
P115
T107
T110
P205
T104
P110
P109
P111
P201
P116
P113
P202
P108
T108
T215
P106
P105
T423
P203
P107
P204
P112
P114
PROCESS PCB

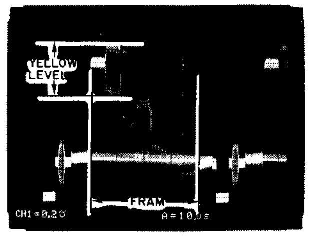
24	COLOUR PHASE

1. WHITE
2. Monitor mode
3. VIDEO OUT
4. P204
5. * Insert the colour conversion filter (NO.25) in front of the lens.
   * Adjust P204 so that the cracked red phase becomes one spot.


ONE SPOT
PAL

26	CHROMA CLIP

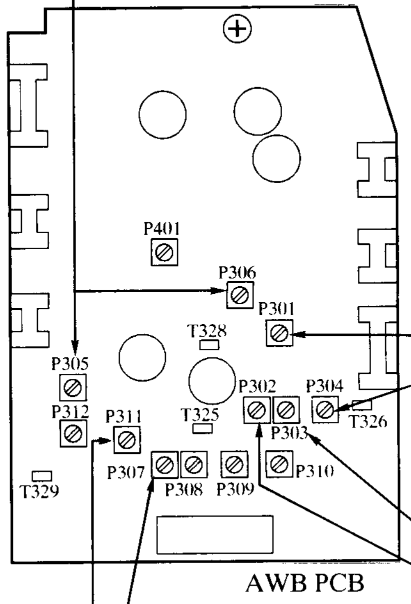
1. Colour bar
2. Monitor mode
3. T804 (VIDEO PCB)
4. P203
5. * Connect the jumper wire between T326 and T328.
   * Adjust zoom switch so that the frame on the oscilloscope becomes 40 μS then measure the level of yellow(A)


YELLOW LEVEL
FRAM
CH1=0.2V
A=10µs

* Adjust the ZOOM switch so that the frame on the oscilloscope becomes 16 μS and measure the level of yellow(B)
* Adjust P203 so that the B/A = 1/2.
* Adjust ZOOM switch again to picture frame becomes 40 μS and confirm that the level of yellow is still kept the same level as A.
  If not obtained, adjust P203 again so that the level of yellow becomes same level as A.

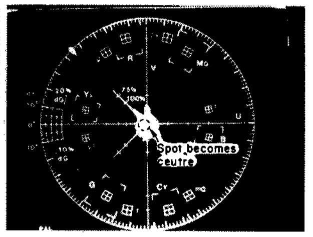
22	WHITE BALANCE TTL COMPENSATION

1. WHITE (Light box)
2. Monitor mode
   WHITE BALANCE: INDOOR
3. T325, T329 and T328
4. P305 and P306
5. * Connect jumper wire between T326 and T328.
   * Connect the DC voltmeter to each test point and measure the voltage at the T325, T329 and T328.
   * Adjust P306 so that the voltage at T325 becomes same voltage at T328 ±0.1 V.
   * Adjust P305 so that the voltage at T329 becomes same voltage at T328 ±0.1 V.


P401
P306
P301
T328
P305
P302
P304
P312
P311
T325
T326
P303
P307
P308
P309
P310
T329
AWB PCB

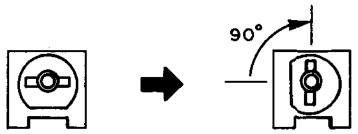
21	FL WHITE BALANCE

1. White lighting with the FL lamp
2. Monitor mode
   WHITE BALANCE: FL
3. VIDEO OUT
4. P307 and P311
5. * Connect the jumper wire between T329, T325, T326 and T328.
   * Adjust gain control on the vectorscope so that the burst is on the circle line.
   * Adjust P307 and P311 so that the spot on the vectorscope becomes centre of screen.

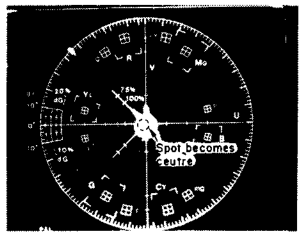

Spot becomes ceutre

19	AWB OFF-SET

1. White (Light box)
2. Monitor mode
   White balance: AUTO, ACT sensor should be aim the white chart.
3. VIDEO OUT
4. P301 and P304
5. * Set the P302 and P303 as shown below.

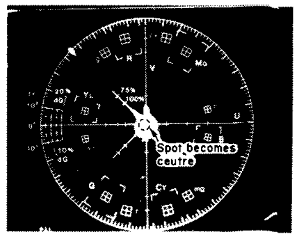


* Adjust gain control on the vectorscope so that the burst is on the circle line.
* Adjust P301 and P304 so that the spot on the vectorscope becomes centre of the screen.


Spot becomes ceutre

20	AWB GAIN

1. White (Light box)
2. Monitor mode
   White balance: AUTO, ACT sensor should be aim the white chart.
3. VIDEO OUT
4. P302 and P303
5. * Connect the jumper wire between T329, T325, T326 and T328.
   * Adjust gain control on the vectorscope so that the burst is on the circleline.
   * Insert the colour conversion filter(80C+80D) in front of the lens and ACT sensor.
   * Adjust P302 and P303 so that the spot on the vectorscope becomes centre of the screen.
   * Remove the colour conversion filter (80C+80D) and confirm that the spot is in the center. If not readjust step 19.


Spot becomes ceutre

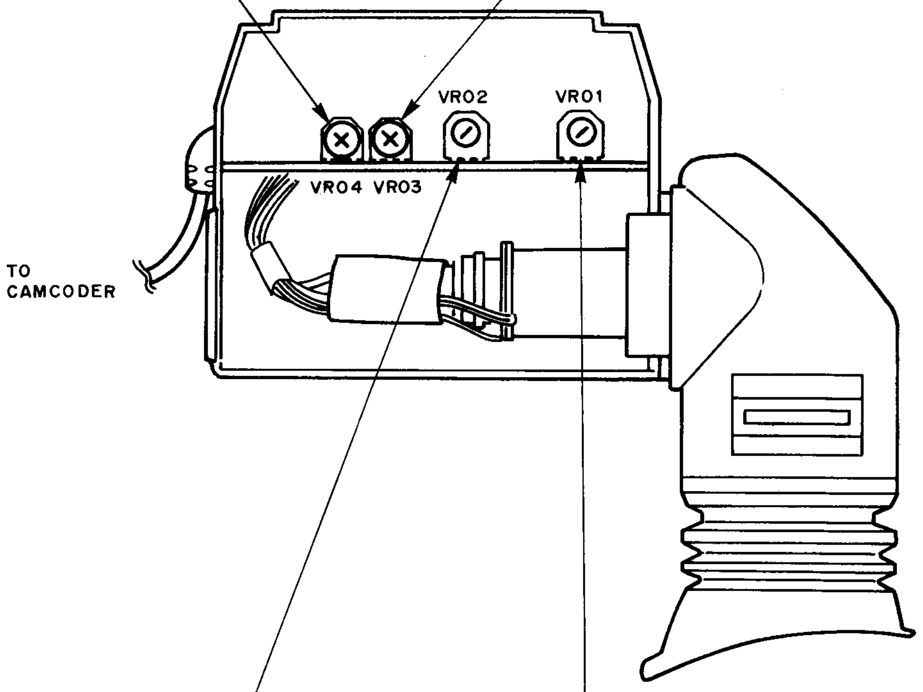
8-5. EVF (ELECTRONIC VIEWFINDER) PCB ADJUSTMENT

3 FOCUS

1. Any Scene
2. Monitor mode
3. Viewfinder screen
4. VR04
5. * Observing the vewfinder screen, and adjust VR04 so that the clear picture is obtained at center of viewfinder screen.

2 BRIGHT

1. Close the IRIS (close the lens cap)
2. Monitor mode
3. Viewfinder screen
4. VR03
5. * Close the IRIS (close the lens) and adjust VR03 so that the raster of CRT is just barely visible in the viewfinder.



4 V.HEIGHT

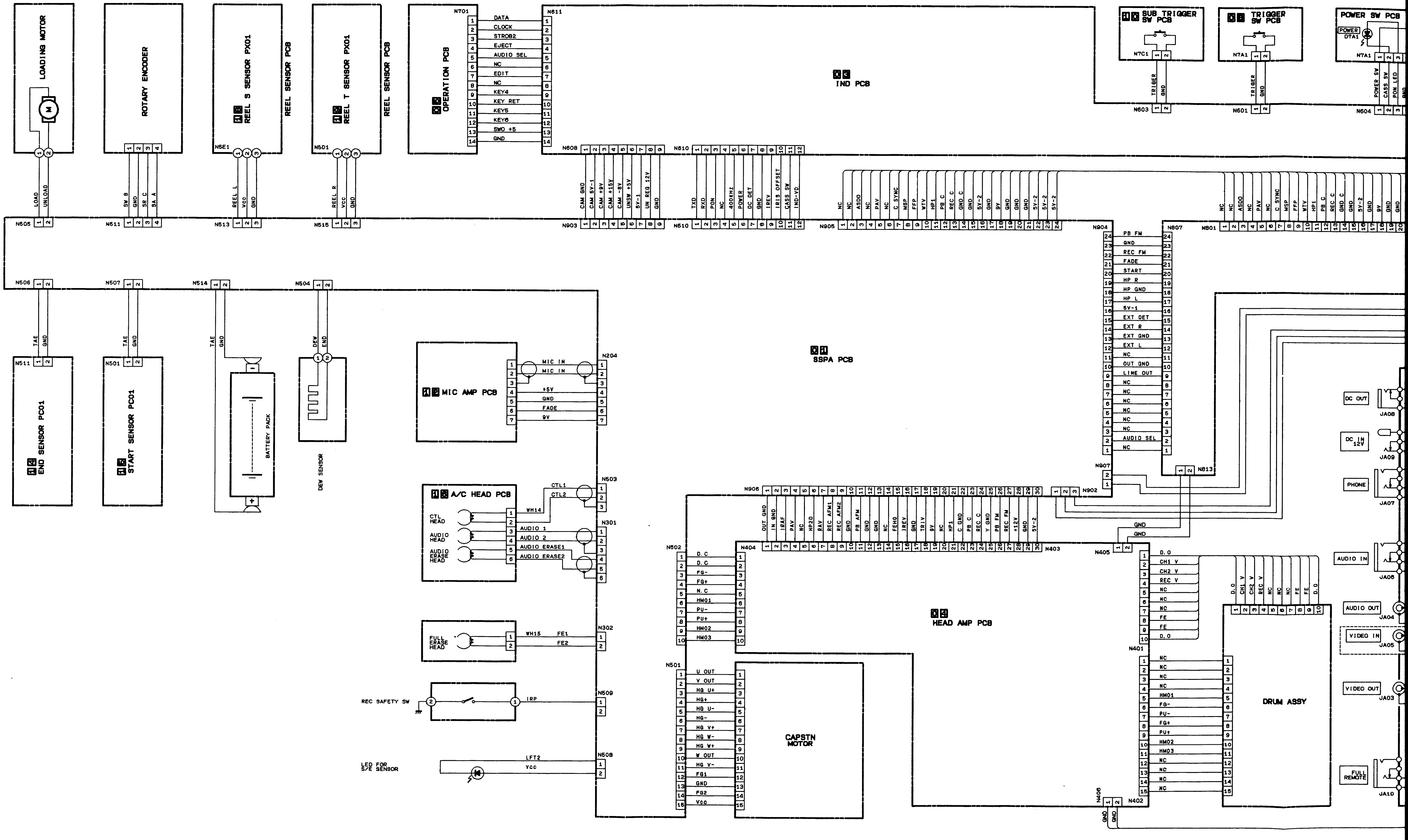
1. Resolution chart
2. Monitor mode
3. Viewfinder screen
4. VR02
5. * Observing the viewfinder screen and adjust VR02 so that the normal picture amplitude is obtain in the viewfinder screen.

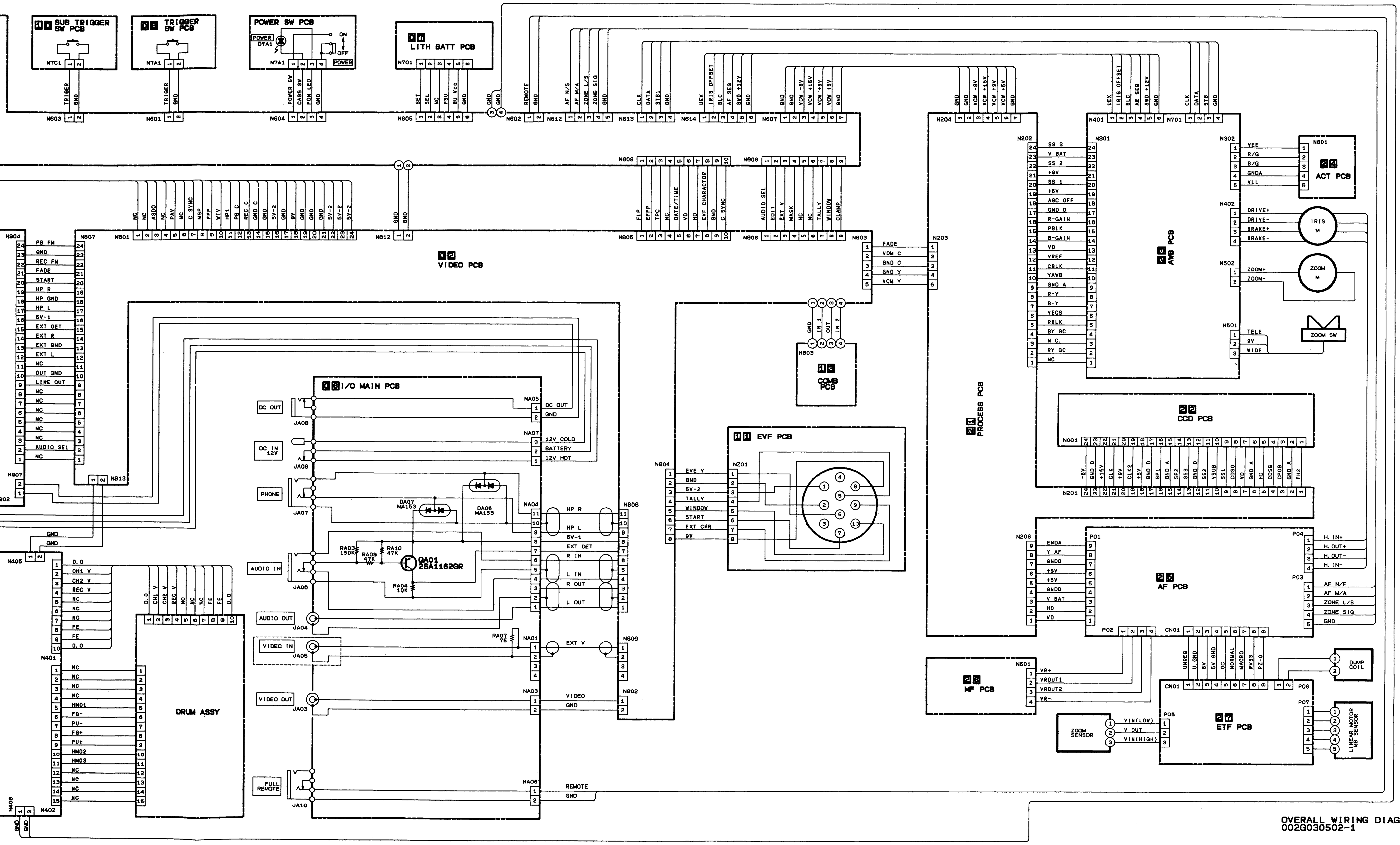
1 H.HOLD

1. No Video signal input.
2. STOP
3. P04 pin 1 (RED WIRE)
4. VR01
5. * Connect the frequency counter to P04 pin 1 (RED WIRE).
   * Adjust VR01 so that the reading on the frequency counter becomes 15.625 KHz ± 400 Hz.

IX. OVERALL WIRING AND BLOCK DIAGRAM

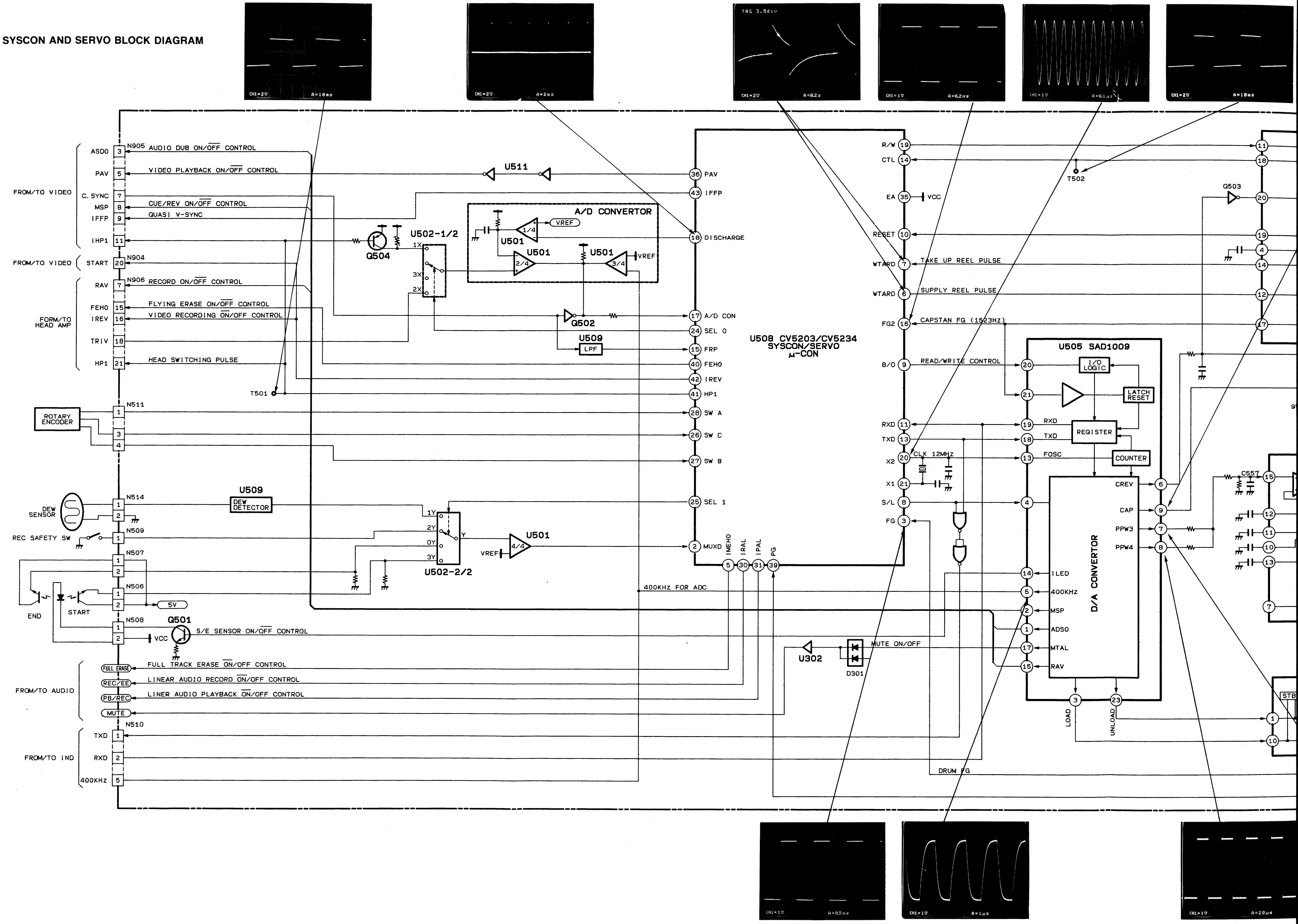
9-1. OVERALL WIRING DIAGRAM

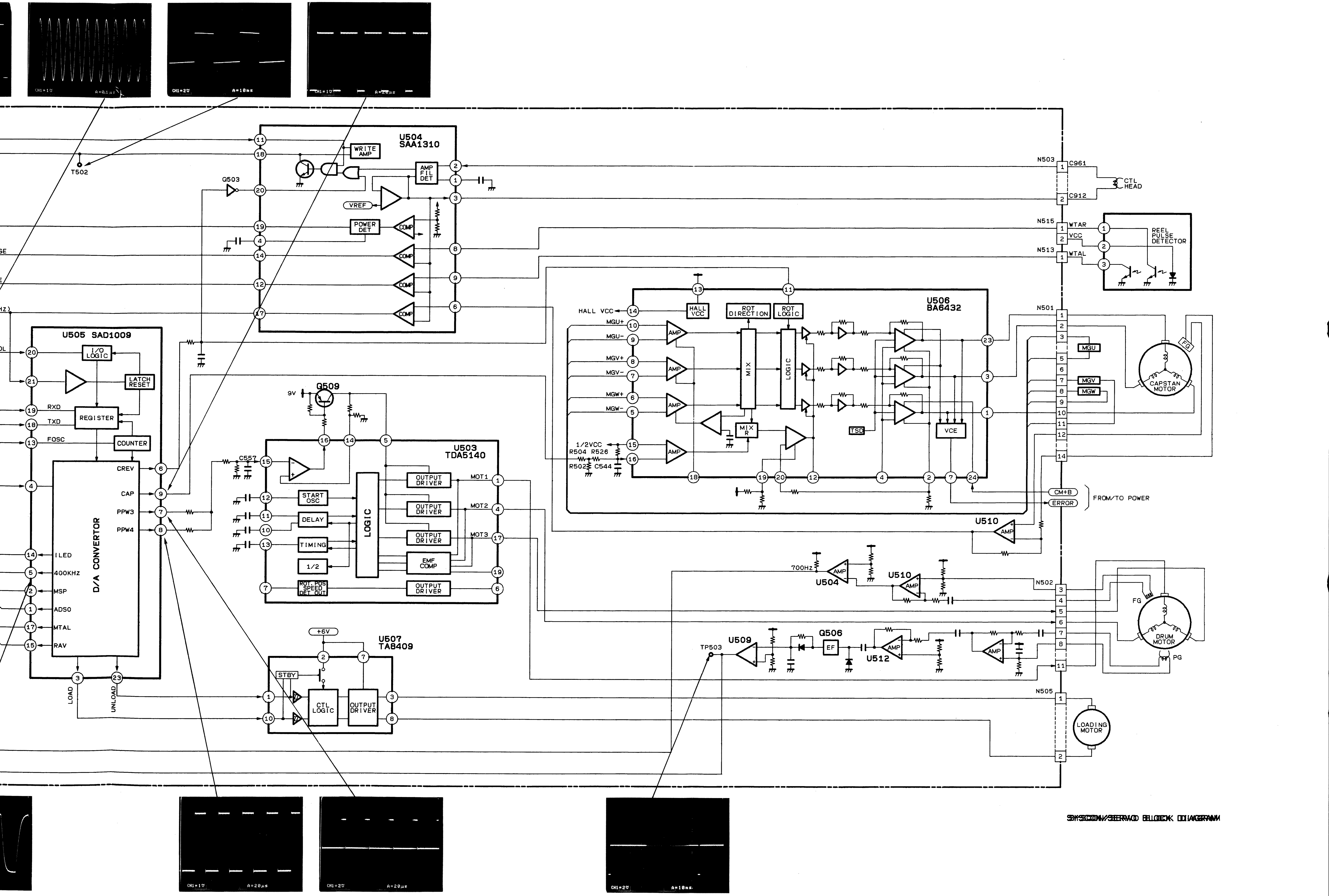

LOADING MOTOR
ROTARY ENCODER
REEL S SENSOR PX01
REEL SENSOR PCB
REEL T SENSOR PX01
REEL SENSOR PCB
OPERATION PCB
N701
DATA
CLOCK
STROBE2
EJECT
AUDIO SEL
NC
EDIT
NC
KEY4
KEY RET
KEY5
KEY6
SW0 +5
GND
N611
IND PCB
SUB TRIGGER SW PCB
TRIGGER SW PCB
POWER SW PCB
N7C1
N7A1
N603
N601
N604
TRIGER
GND
POWER SW
CASS SW
POW LED
N608
N610
CAM GND
CAM 5V-1
CAM +9V
CAM +15V
CAM -8V
UNSW +5V
5V-1
UN REG 12V
GND
TXD
RXD
PON
NC
400KHZ
POWER
DC DET
GND
IREV
IRIS OFFSET
CASS SW
IND-VD
LOAD
UNLOAD
SW B
GND
SR C
SA A
REEL L
Vcc
GND
REEL R
N505
N511
N513
N515
N903
N510
N905
N904
N807
N801
N5E1
N5D1
NC
ASDO
PAV
C SYNC
MSP
FFP
WTV
HP1
PB C
REC C
GND C
5V-2
9V
PB FM
REC FM
FADE
START
HP R
HP GND
HP L
5V-1
EXT DET
EXT R
EXT GND
EXT L
OUT GND
LINE OUT
AUDIO SEL
N506
N507
N514
N504
TAE
DEW
SSPA PCB
N511
END SENSOR PC01
N501
START SENSOR PC01
BATTERY PACK
DEW SENSOR
MIC AMP PCB
MIC IN
+5V
FADE
9V
N204
N503
N813
N907
N902
N906
A/C HEAD PCB
CTL HEAD
AUDIO HEAD
AUDIO ERASE HEAD
WH14
CTL1
CTL2
AUDIO 1
AUDIO 2
AUDIO ERASE1
AUDIO ERASE2
N301
FULL ERASE HEAD
WH15
FE1
FE2
N302
REC SAFETY SW
IRP
N509
LED FOR S/E SENSOR
LFT2
Vcc
N508
OUT GND
IN GND
IRAF
HP2D
RAV
REC AFM1
REC AFM2
PB AFM
FEHG
IREV
TRIV
HP1
C GND
Y GND
+12V
N502
N404
N403
N405
D.C
FG-
FG+
N.C
HM01
PU-
PU+
HM02
HM03
HEAD AMP PCB
N501
U OUT
V OUT
HG U+
HG+
HG U-
HG-
HG V+
HG W-
HG W+
W OUT
HG V-
FG1
FG2
CAPSTN MOTOR
D.O
CH1 V
CH2 V
REC V
FE
N401
DRUM ASSY
N406
N402
DC OUT
JA08
DC IN 12V
JA09
PHONE
JA07
AUDIO IN
JA06
AUDIO OUT
JA04
VIDEO IN
JA05
VIDEO OUT
JA03
FULL REMOTE
JA10


SUB TRIGGER SW PCB
N7C1
TRIGGER SW PCB
N7A1
POWER SW PCB
POWER
DTA1
ON
OFF
POWER
LITH BATT PCB
N701
TRIGER
GND
POWER SW
CASS SW
POW LED
SET
SEL
NC
PSU
BU Vcc
REMOTE
AF N/S
AF M/A
ZONE L/S
ZONE SIG
CLK
DATA
STB1
UEX
IRIS OFFSET
BLC
AF SEG
SVD +12V
VCM -8V
VCM +15V
VCM +9V
VCM +5V
N603
N601
N604
N605
N602
N612
N613
N614
N607
N204
N401
N701
N809
N606
N202
N301
N302
N801
ACT PCB
VEE
R/G
B/G
GNDA
VLL
N402
DRIVE+
DRIVE-
BRAKE+
BRAKE-
IRIS M
N502
ZOOM+
ZOOM-
ZOOM M
N501
TELE
9V
WIDE
ZOOM SW
AWB PCB
SS 3
V BAT
SS 2
+9V
SS 1
+5V
AGC OFF
GND D
R-GAIN
PBLK
B-GAIN
VD
VREF
CBLK
YAWB
GND A
R-Y
B-Y
YECS
RBLK
BY GC
N. C.
RY GC
NC
FLP
EFFP
TPC
DATE/TIME
VD
HD
EVF CHARACTOR
GND
C SYNC
AUDIO SEL
EDIT
EXT V
MASK
TALLY
WINDOW
CLAMP
N904
N807
N801
N812
N805
N806
N803
N203
FADE
VDM C
GND C
GND Y
VCM Y
ASDO
PAV
C SYNC
MSP
FFP
WTV
HP1
PB C
REC C
5V-2
9V
VIDEO PCB
PB FM
REC FM
START
HP R
HP GND
HP L
5V-1
EXT DET
EXT R
EXT GND
EXT L
OUT GND
LINE OUT
N907
N813
N405
N401
N402
N406
D.O
CH1 V
CH2 V
REC V
FE
HM01
FG-
PU-
FG+
PU+
HM02
HM03
DRUM ASSY
I/O MAIN PCB
DC OUT
JA08
DC IN 12V
JA09
PHONE
JA07
AUDIO IN
JA06
AUDIO OUT
JA04
VIDEO IN
JA05
VIDEO OUT
JA03
FULL REMOTE
JA10
NA05
NA07
NA04
NA01
NA03
NA06
12V COLD
BATTERY
12V HOT
DA07 MA153
DA06 MA153
RA03 150K
RA09 47K
RA10 47K
QA01 2SA1162GR
RA04 10K
RA07 75
HP R
HP L
EXT DET
R IN
L IN
R OUT
L OUT
EXT V
VIDEO
N808
N809
N802
N804
COMB PCB
IN 1
OUT
IN 2
EVF PCB
NZ01
EVE Y
TALLY
WINDOW
EXT CHR
PROCESS PCB
CCD PCB
N001
N201
VSUB
CDSO
CDSG
CPOB
FH2
SP1
SP2
SS3
CLK2
N206
AF PCB
ENDA
Y AF
GNDD
HD
P01
P04
P03
P02
CN01
H. IN+
H. OUT+
H. OUT-
H. IN-
AF N/F
AF M/A
ZONE L/S
ZONE SIG
MF PCB
N601
VR+
VROUT1
VROUT2
VR-
UNREG
U. GND
5V GND
OC
NORMAL
MACRO
RVSS
PZ-O
DUMP COIL
P06
P07
ETF PCB
P05
ZOOM SENSOR
VIN(LOW)
V OUT
VIN(HIGH)
LINEAR MOTOR MS SENSOR

OVERALL WIRING DIAGRAM
002G030502-1

9-2. SYSCON AND SERVO BLOCK DIAGRAM

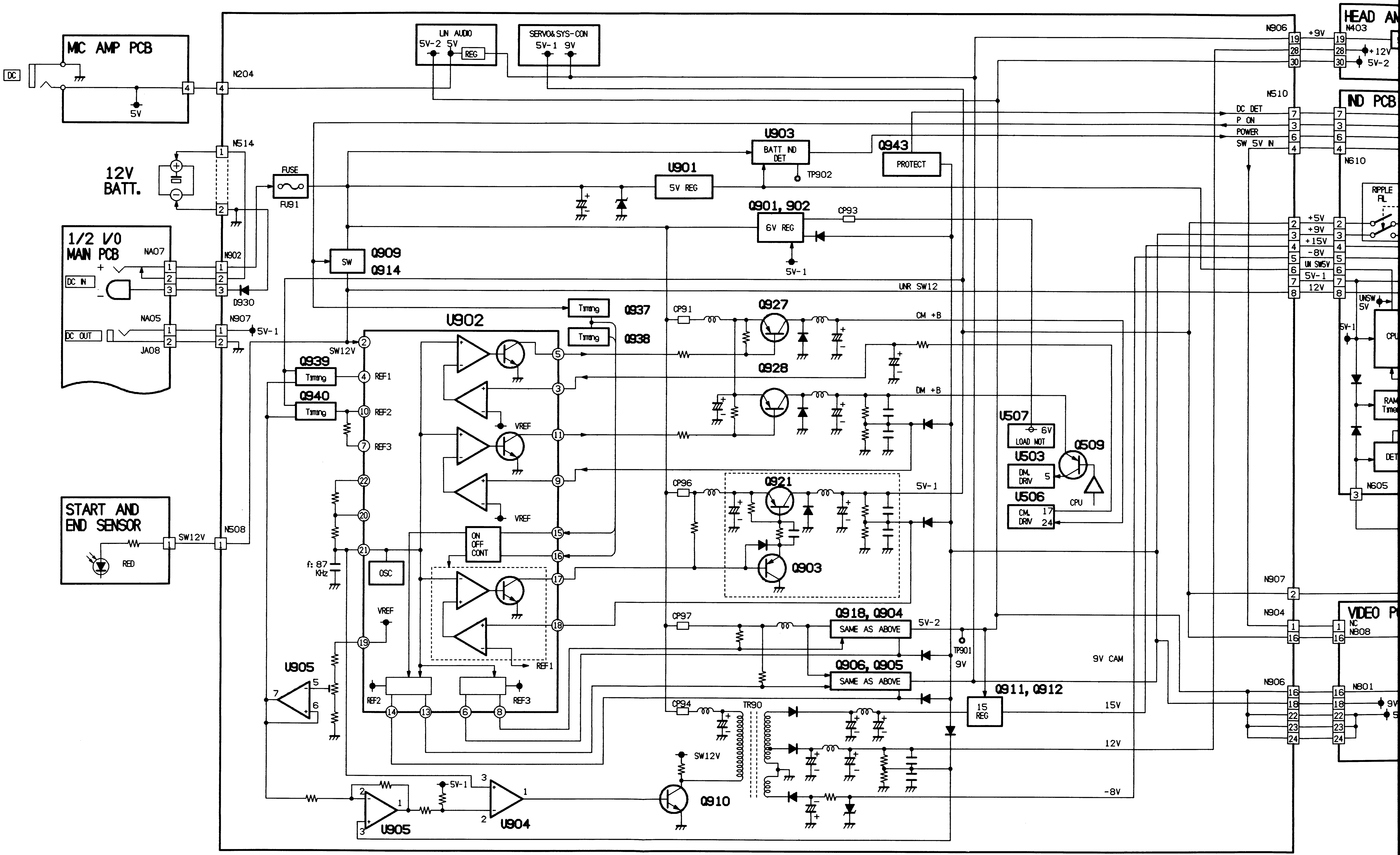

CH1=2V A=10ms
CH1=2V A=2ms
TRG 3.5div
CH1=2V A=0.2s
CH1=1V A=0.2ms
CH1=1V A=0.1µs
CH1=2V A=10ms
FROM/TO VIDEO
ASDO
PAV
C. SYNC
MSP
IFFP
IHP1
N905
AUDIO DUB ON/OFF CONTROL
VIDEO PLAYBACK ON/OFF CONTROL
CUE/REV ON/OFF CONTROL
QUASI V-SYNC
U511
A/D CONVERTOR
VREF
U501
1/4
2/4
3/4
U502-1/2
1X
2X
3X
Q504
FROM/TO VIDEO
START
N904
N906
RECORD ON/OFF CONTROL
FORM/TO HEAD AMP
RAV
FEHO
IREV
TRIV
HP1
FLYING ERASE ON/OFF CONTROL
VIDEO RECORDING ON/OFF CONTROL
HEAD SWITCHING PULSE
Q502
U509
LPF
T501
N511
ROTARY ENCODER
DEW SENSOR
N514
U509
DEW DETECTOR
REC SAFETY SW
N509
N507
N506
END
START
5V
N508
Q501
VCC
S/E SENSOR ON/OFF CONTROL
U502-2/2
1Y
2Y
0Y
3Y
Y
4/4
FROM/TO AUDIO
FULL ERASE
REC/EE
PB/REC
MUTE
FULL TRACK ERASE ON/OFF CONTROL
LINEAR AUDIO RECORD ON/OFF CONTROL
LINER AUDIO PLAYBACK ON/OFF CONTROL
N510
FROM/TO IND
TXD
RXD
400KHZ
U508 CV5203/CV5234
SYSCON/SERVO
µ-CON
PAV
IFFP
DISCHARGE
A/D CON
SEL 0
FRP
FEHO
IREV
HP1
SW A
SW C
SW B
SEL 1
MUXD
IMEHO
IRAL
IPAL
PG
400KHZ FOR ADC
U302
D301
MUTE ON/OFF
R/W
CTL
EA
VCC
RESET
WTARD
TAKE UP REEL PULSE
SUPPLY REEL PULSE
FG2
CAPSTAN FG (1523HZ)
B/O
READ/WRITE CONTROL
RXD
TXD
X2
CLK 12MHZ
X1
S/L
FG
DRUM FG
T502
Q503
U505 SAD1009
I/O LOGIC
LATCH RESET
REGISTER
COUNTER
FOSC
D/A CONVERTOR
CREV
CAP
PPW3
PPW4
ILED
400KHZ
MSP
ADSO
MTAL
RAV
LOAD
UNLOAD
C557
STB
CH1=1V A=0.5ms
CH1=1V A=1µs
CH1=1V A=20µs

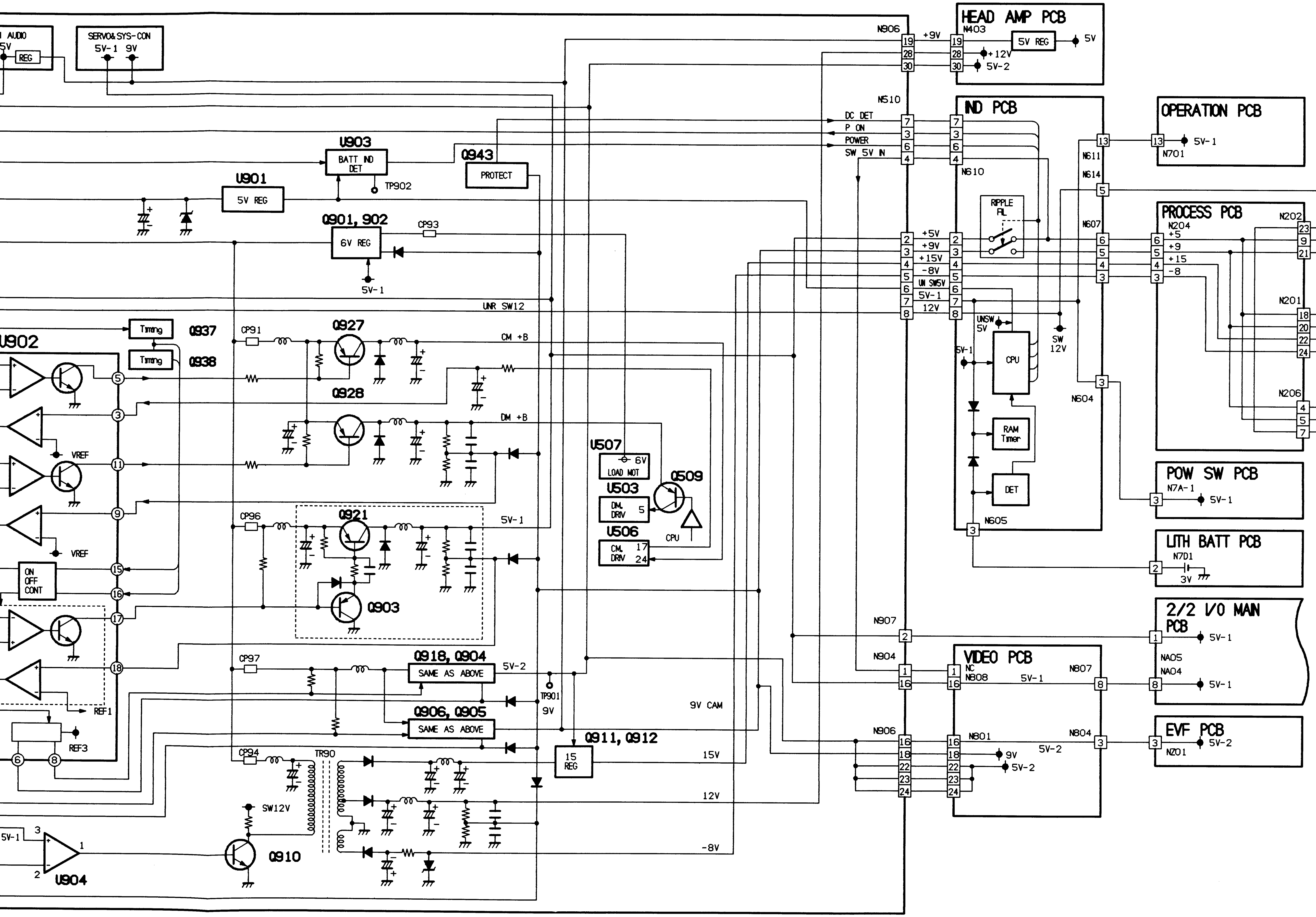


CH1=1V A=0.1µs
CH1=2V A=10ms
CH1=1V A=20µs
T502
U504
SAA1310
WRITE AMP
AMP FIL DET
Q503
VREF
POWER DET
COMP
N503
C961
C912
CTL HEAD
N515
WTAR
VCC
N513
WTAL
REEL PULSE DETECTOR
U506
BA6432
HALL VCC
ROT DIRECTION
ROT LOGIC
MGU+
MGU-
MGV+
MGV-
MGW+
MGW-
AMP
MIX
LOGIC
MIX R
TSD
VCE
1/2VCC
R504 R526
R502 C544
N501
MGU
MGV
MGW
FG
CAPSTAN MOTOR
CM+B
ERROR
FROM/TO POWER
U510
U505 SAD1009
I/O LOGIC
LATCH RESET
RXD
TXD
FOSC
REGISTER
COUNTER
CREV
CAP
PPW3
PPW4
D/A CONVERTOR
ILED
400KHZ
MSP
ADSO
MTAL
RAV
LOAD
UNLOAD
Q509
9V
U503
TDA5140
C557
START OSC
DELAY
TIMING
1/2
ROT. POS SPEED DET OUT
OUTPUT DRIVER
EMF COMP
MOT1
MOT2
MOT3
700HZ
U504
U510
N502
DRUM MOTOR
PG
U509
TP503
Q506
EF
U512
U507
TA8409
+6V
STBY
CTL LOGIC
N505
LOADING MOTOR
CH1=1V A=20µs
CH1=2V A=20µs
CH1=2V A=10ms

SYSCON/SERVO BLOCK DIAGRAM

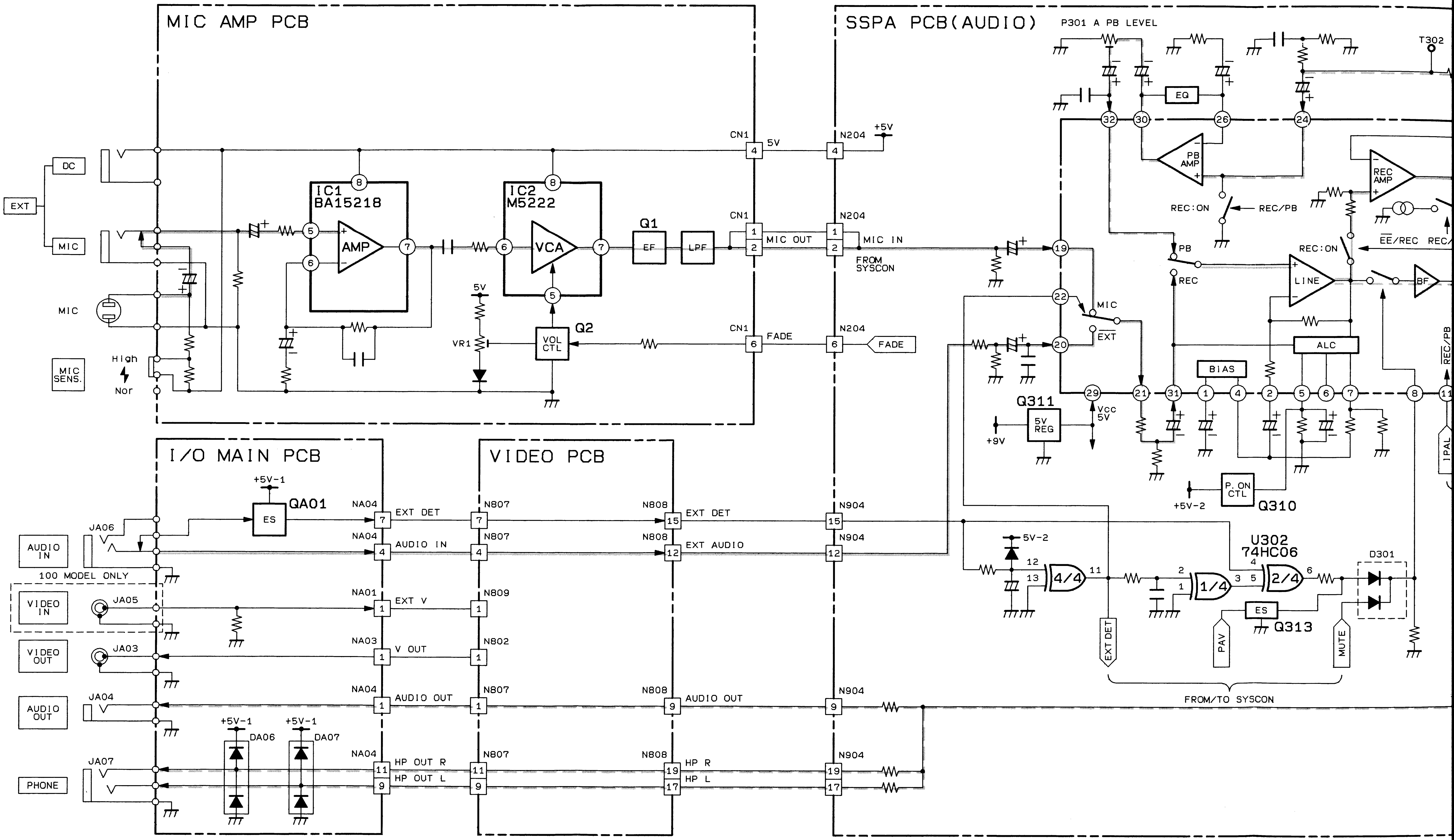
9-3. POWER SUPPLY BLOCK DIAGRAM

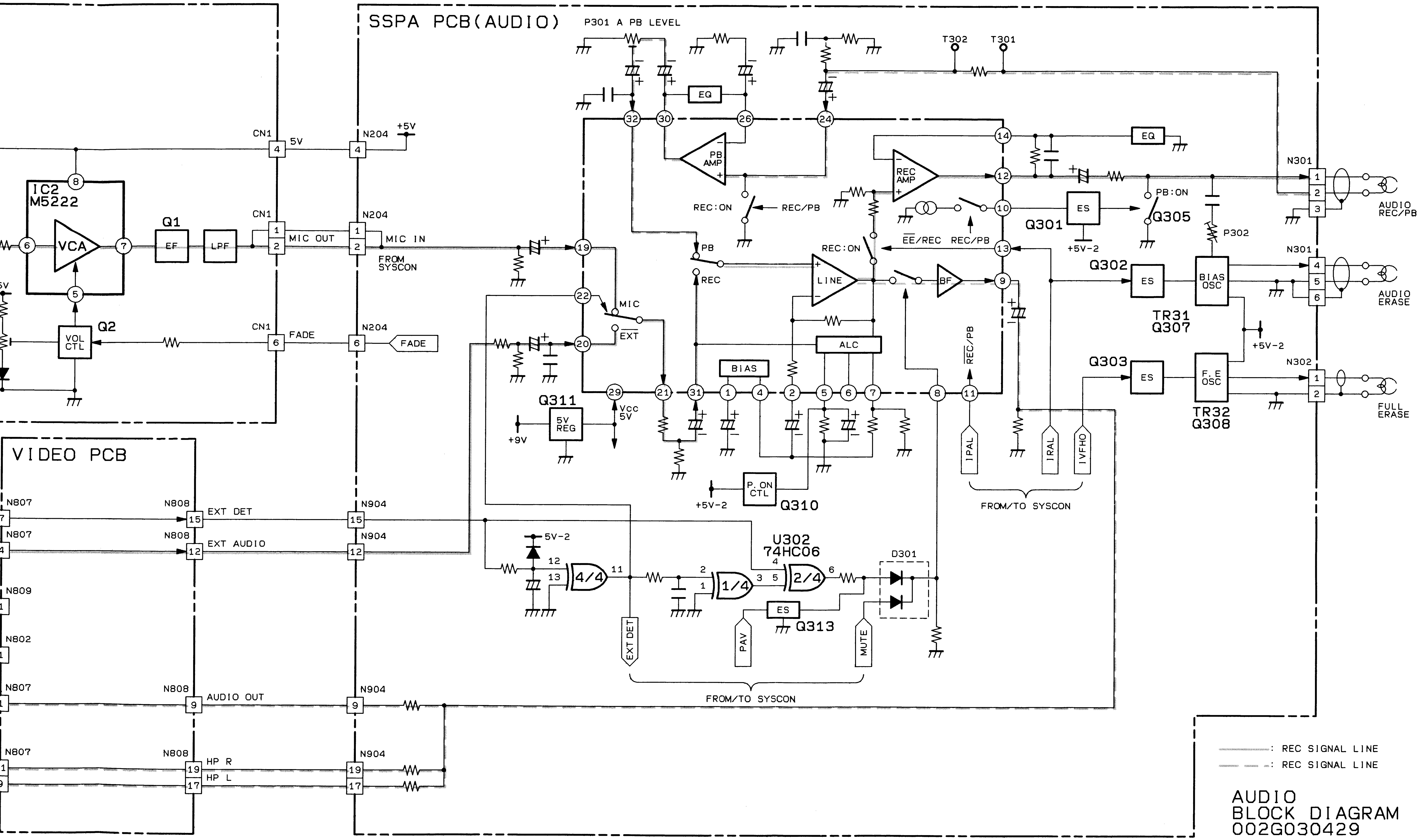

MIC AMP PCB
DC
5V
N204
12V BATT.
N514
FUSE
FU91
1/2 I/O MAIN PCB
NA07
DC IN
N902
D930
NA05
DC OUT
JA08
N907
5V-1
SW12V
START AND END SENSOR
RED
N508
LIN AUDIO
5V-2 5V
REG
SERVO& SYS-CON
5V-1 9V
U903
BATT IND DET
TP902
Q943
PROTECT
U901
5V REG
Q901, 902
6V REG
CP93
SW
Q909
Q914
UNR SW12
Timing
Q937
Q938
U902
Q939
Q940
REF1
REF2
REF3
VREF
ON OFF CONT
OSC
f: 87 KHz
U905
U904
Q910
CP91
Q927
Q928
CM +B
DM +B
CP96
Q921
Q903
CP97
Q918, Q904
SAME AS ABOVE
5V-2
TP901
9V
9V CAM
Q906, Q905
Q911, Q912
15 REG
15V
CP94
TR90
12V
-8V
U507
6V
LOAD MOT
U503
DM. DRIV
U506
CM. DRIV
Q509
CPU
N906
+9V
HEAD AM
N403
+12V
5V-2
N510
DC DET
P ON
POWER
SW 5V IN
IND PCB
RIPPLE FL
+5V
+9V
+15V
-8V
UN SW5V
5V-1
12V
UNSW 5V
CPU
RAM Timer
DET
N605
N907
N904
VIDEO P
NC
N808
N801
9V


AUDIO
5V
REG
SERVO&SYS-CON
5V-1 9V
U903
BATT IND DET
TP902
Q943
PROTECT
U901
5V REG
Q901, 902
6V REG
CP93
5V-1
UNR SW12
U902
Timing
Q937
Q938
CP91
Q927
CM +B
Q928
DM +B
VREF
U507
6V
LOAD MOT
U503
DM. DRIV
5
Q509
U506
CM. DRIV
17
24
CPU
CP96
Q921
5V-1
Q903
ON OFF CONT
REF1
REF3
CP97
Q918, Q904
SAME AS ABOVE
5V-2
TP901
9V
9V CAM
Q906, Q905
SAME AS ABOVE
Q911, Q912
15 REG
CP94
TR90
15V
SW12V
12V
-8V
U904
Q910
N906
+9V
N510
DC DET
P ON
POWER
SW 5V IN
+5V
+9V
+15V
-8V
UN SW5V
5V-1
12V
N907
N904
HEAD AMP PCB
N403
5V REG
5V
+12V
5V-2
IND PCB
N610
N611
N614
N607
N604
N605
RIPPLE FIL
UNSW 5V
SW 12V
CPU
RAM Timer
DET
OPERATION PCB
5V-1
N701
PROCESS PCB
N204
+5
+9
+15
-8
N202
N201
N206
AWB PCB
12V UNR
N501
N401
N301
DR
5V
N302
ZOOM SW
N502
SW UNR 12V
N801
ACT PCB
5V
CCD PCB
5V
9V
15V
-8V
N001
AF PCB
5V
9V
12V UNR
P01
POW SW PCB
N7A-1
5V-1
LITH BATT PCB
N7D1
3V
2/2 I/O MAIN PCB
5V-1
NA05
NA04
5V-1
VIDEO PCB
NC
N808
5V-1
N807
N801
9V
5V-2
N804
EVF PCB
5V-2
NZ01

POWER SUPPLY BLOCK DIAGRAM

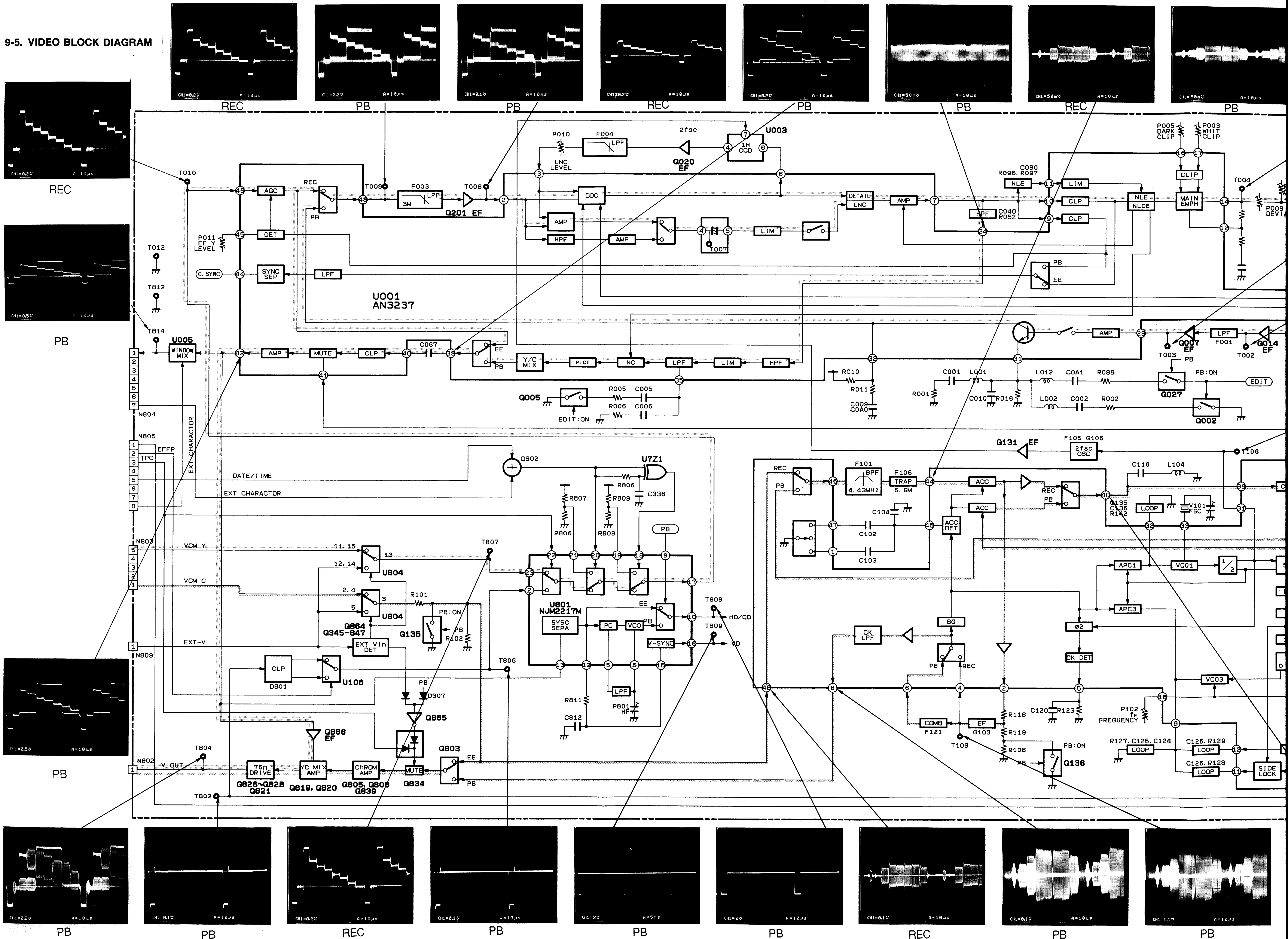
9-4. AUDIO BLOCK DIAGRAM


MIC AMP PCB
SSPA PCB(AUDIO)
I/O MAIN PCB
VIDEO PCB
EXT
DC
MIC
MIC
MIC SENS.
High
Nor
IC1
BA15218
AMP
IC2
M5222
VCA
Q1
EF
LPF
Q2
VOL CTL
VR1
5V
CN1
5V
MIC OUT
FADE
N204
+5V
MIC IN
FROM SYSCON
FADE
P301 A PB LEVEL
T302
EQ
PB AMP
REC AMP
REC:ON
REC/PB
PB
REC
REC:ON
EE/REC
LINE
BF
ALC
BIAS
MIC
EXT
Q311
5V REG
+9V
Vcc 5V
P. ON CTL
Q310
+5V-2
REC/PB
IPAL
+5V-1
ES
QA01
JA06
AUDIO IN
100 MODEL ONLY
VIDEO IN
JA05
VIDEO OUT
JA03
AUDIO OUT
JA04
PHONE
JA07
DA06
DA07
NA04
NA01
NA03
EXT DET
AUDIO IN
EXT V
V OUT
AUDIO OUT
HP OUT R
HP OUT L
N807
N809
N802
N808
EXT DET
EXT AUDIO
AUDIO OUT
HP R
HP L
N904
5V-2
4/4
1/4
2/4
U302
74HC06
ES
Q313
D301
EXT DET
PAV
MUTE
FROM/TO SYSCON

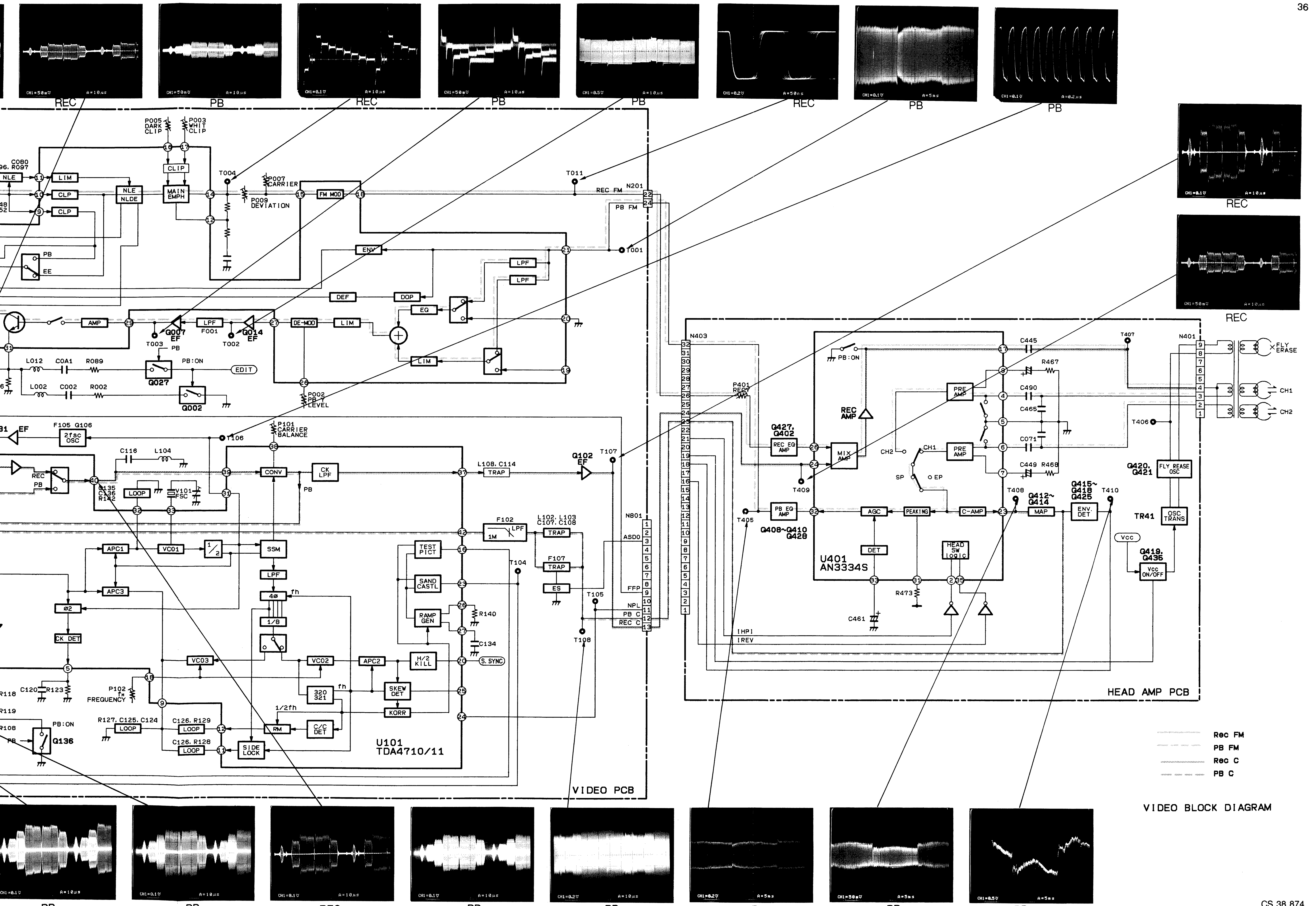

SSPA PCB(AUDIO)
P301 A PB LEVEL
T302
T301
EQ
PB AMP
REC AMP
EQ
32
30
26
24
14
12
10
13
9
N301
1
2
3
AUDIO REC/PB
REC:ON
REC/PB
PB:ON
Q305
ES
Q301
+5V-2
P302
EE/REC
REC/PB
REC:ON
PB
REC
LINE
BF
Q302
ES
BIAS OSC
TR31
Q307
N301
4
5
6
AUDIO ERASE
+5V-2
Q303
ES
F. E OSC
TR32
Q308
N302
1
2
FULL ERASE
CN1
5V
4
N204
4
+5V
IC2
M5222
8
6
VCA
7
5
Q1
EF
LPF
CN1
1
2
MIC OUT
N204
1
2
MIC IN
FROM SYSCON
19
22
MIC
EXT
20
Q2
VOL CTL
CN1
FADE
6
N204
6
FADE
5V
Q311
5V REG
+9V
29
Vcc 5V
21
31
1
4
2
5
6
7
8
11
BIAS
ALC
REC/PB
P. ON CTL
+5V-2
Q310
IPAL
IRAL
IVFHO
FROM/TO SYSCON
VIDEO PCB
N807
N808
15
EXT DET
N904
15
N807
N808
12
EXT AUDIO
N904
12
N809
N802
5V-2
12
13
4/4
11
2
1
1/4
3
4
5
2/4
6
U302
74HC06
D301
ES
Q313
EXT DET
PAV
MUTE
FROM/TO SYSCON
N807
N808
9
AUDIO OUT
N904
9
N807
N808
19
HP R
17
HP L
N904
19
17
: REC SIGNAL LINE
: REC SIGNAL LINE

AUDIO
BLOCK DIAGRAM
002G030429

9-5. VIDEO BLOCK DIAGRAM

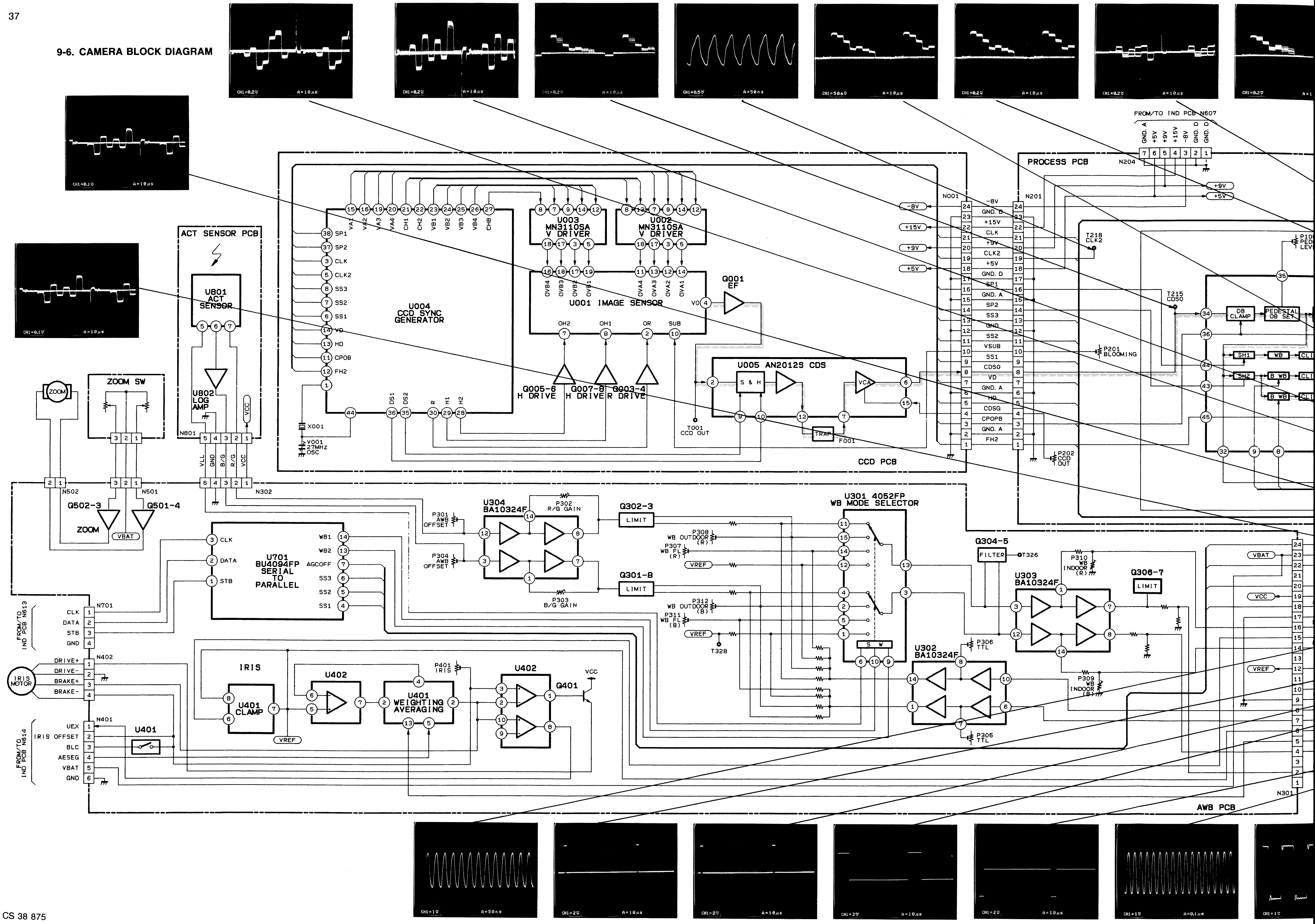


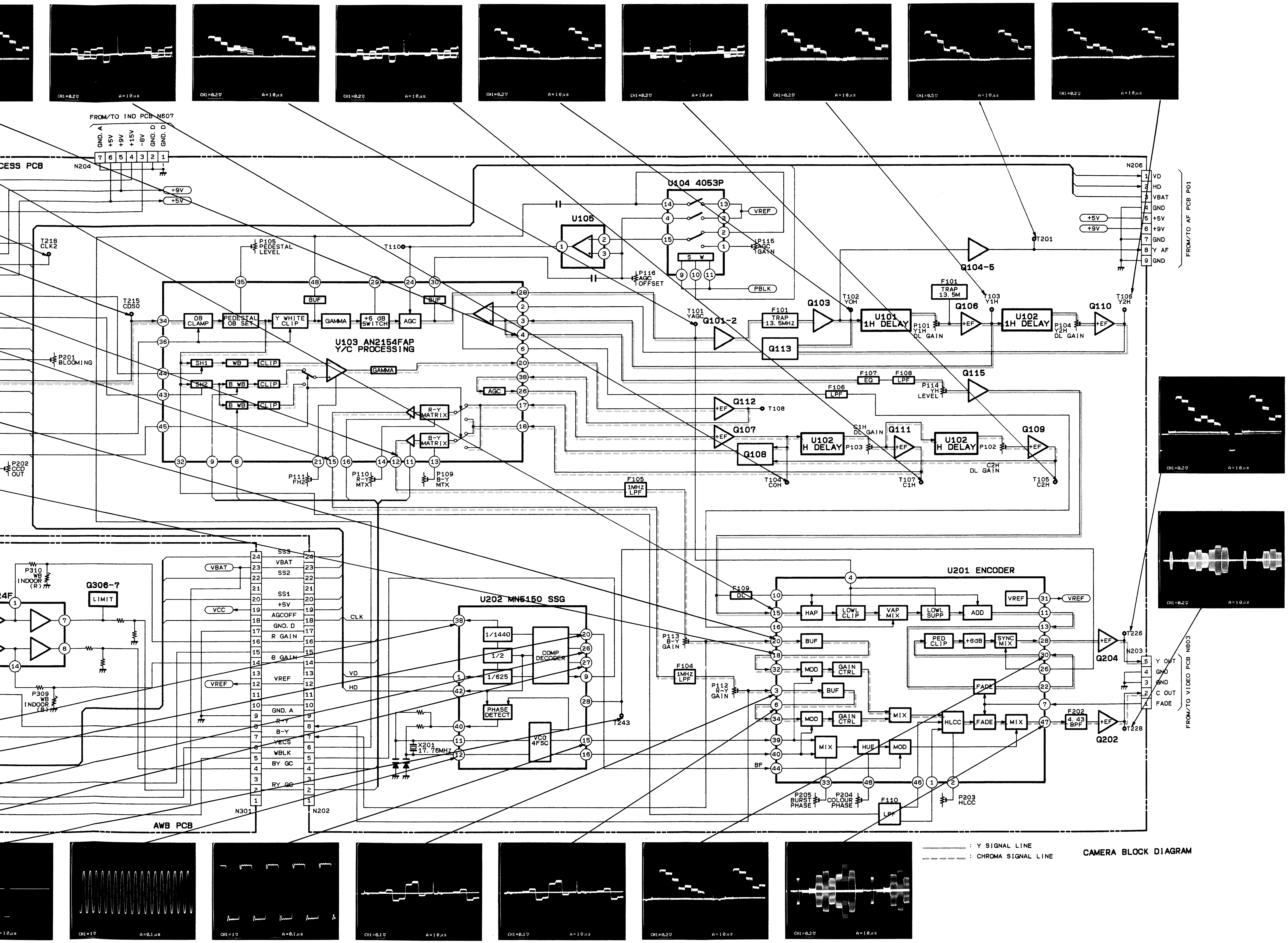
REC
PB
PB
REC
PB
PB
REC
PB
REC
PB
PB
PB
PB
REC
PB
PB
PB
REC
PB
PB
CH1=0.2V A=10µs
CH1=0.1V A=10µs
CH1=50mV A=10µs
CH1=0.5V A=10µs
CH1=2V A=5ms
CH1=2V A=10µs
T010
T012
T812
T814
T009
T008
T004
T003
T002
T106
T807
T806
T808
T809
T804
T802
T109
U001
AN3237
U003
1H CCD
2fsc
Q020 EF
F004 LPF
P010 LNC LEVEL
F003 3M LPF
Q201 EF
AGC
DET
REC
PB
P011 EE Y LEVEL
C. SYNC
SYNC SEP
LPF
DOC
AMP
HPF
AMP
T007
LIM
DETAIL LNC
AMP
HPF
C048 R052
C080 R096, R097
NLE
LIM
CLP
CLP
NLE NLDE
CLIP
MAIN EMPH
P005 DARK CLIP
P003 WHIT CLIP
P009 DEVI
EE
U005 WINDOW MIX
AMP
MUTE
CLP
C067
Y/C MIX
PICT
NC
LPF
LIM
HPF
Q005
R005 C005
R006 C006
EDIT:ON
R010
R011
C009 C0A0
R001
C001
L001
C010
R016
L012
C0A1
R089
L002
C002
R002
Q027
Q002
PB:ON
EDIT
AMP
Q007 EF
F001 LPF
Q014 EF
Q131 EF
F105 Q106 2fsc OSC
N804
N805
EFFP
TPC
EXT CHARACTOR
DATE/TIME
EXT CHARACTOR
D802
U7Z1
R806
C336
R807
R809
R806
R808
PB
U801 NJM2217M
SYSC SEPA
PC
VCO
V-SYNC
EE
PB
HD/CD
VD
N803
VCM Y
VCM C
11, 15
12, 14
13
U804
2, 4
5
3
U804
R101
Q864
Q345-847
EXT Vin DET
Q135
PB:ON
PB
R102
N809
EXT-V
CLP
D801
U106
PB
D307
Q865
Q866 EF
N802
V OUT
75Ω DRIVE
Q826~Q828 Q821
YC MIX AMP
Q819, Q820
ChROM AMP
Q805, Q806 Q839
MUTE
Q834
Q803
EE
PB
R811
C812
LPF
P801 HF
REC
PB
F101 BPF 4.43MHz
F106 TRAP 5.6M
C104
C102
C103
ACC
ACC
ACC DET
REC
PB
C116
L104
Q135 C136 R142
LOOP
V101 FSC
APC1
VC01
1/2
APC3
ø2
CK DET
VC03
CK LPF
BG
PB
REC
COMB F1Z1
EF Q103
R118
R119
R108
C120
R123
P102 fH FREQUENCY
PB:ON
Q136
R127, C125, C124
LOOP
C126, R129
LOOP
C126, R128
LOOP
SIDE LOCK


REC
PB
REC
PB
PB
REC
PB
PB
REC
REC
P005 DARK CLIP
P003 WHIT CLIP
CLIP
NLE
LIM
CLP
CLP
NLE NLDE
MAIN EMPH
T004
P007 CARRIER
P009 DEVIATION
FM MOD
T011
REC FM
N201
PB FM
T001
ENV
LPF
LPF
DEF
DOP
EQ
PB
EE
AMP
Q007 EF
LPF F001
Q014 EF
DE-MOD
LIM
T003
T002
LIM
PB
L012
C0A1
R089
Q027
PB:ON
EDIT
L002
C002
R002
Q002
P002 PB Y LEVEL
EF
F105 Q106
2fsc OSC
T106
P101 CARRIER BALANCE
C116
L104
REC
PB
Q135 C136 R142
LOOP
V101 FSC
CONV
CK LPF
PB
L108. C114
TRAP
Q102 EF
T107
F102
LPF
1M
L102. L103 C107. C108
TRAP
F107
TRAP
ES
T104
T105
T108
N801
ASD0
FFP
NPL
PB C
REC C
APC1
VC01
1/2
SSM
LPF
4ø
fh
1/8
TEST PICT
SAND CASTL
RAMP GEN
R140
C134
APC3
ø2
CK DET
VC03
VC02
APC2
H/2 KILL
S. SYNC
SKEW DET
320 321
fh
KORR
1/2fh
RM
C/C DET
SIDE LOCK
R118
C120
R123
P102 fH FREQUENCY
R119
R108
PB:ON
Q136
R127. C125. C124
LOOP
C126. R129
LOOP
C126. R128
LOOP
U101
TDA4710/11
VIDEO PCB
N403
P401 REC Y
Q427. Q402
REC EQ AMP
REC AMP
MIX AMP
T409
T405
PB EQ AMP
Q408~Q410 Q428
PB:ON
C445
R467
C490
C465
C071
C449
R468
PRE AMP
PRE AMP
CH2
CH1
SP
EP
AGC
PEAKING
C-AMP
DET
HEAD SW logic
U401
AN3334S
R473
C461
IHP1
IREV
T407
N401
FLY ERASE
CH1
CH2
T406
T408
Q412~Q414
MAP
Q415~ Q418 Q425
ENV. DET
T410
Q420. Q421
FLY REASE OSC
TR41
OSC TRANS
Vcc
Q419. Q436
Vcc ON/OFF
HEAD AMP PCB
Rec FM
PB FM
Rec C
PB C
PB
PB
REC
PB
PB
PB
PB
PB

VIDEO BLOCK DIAGRAM

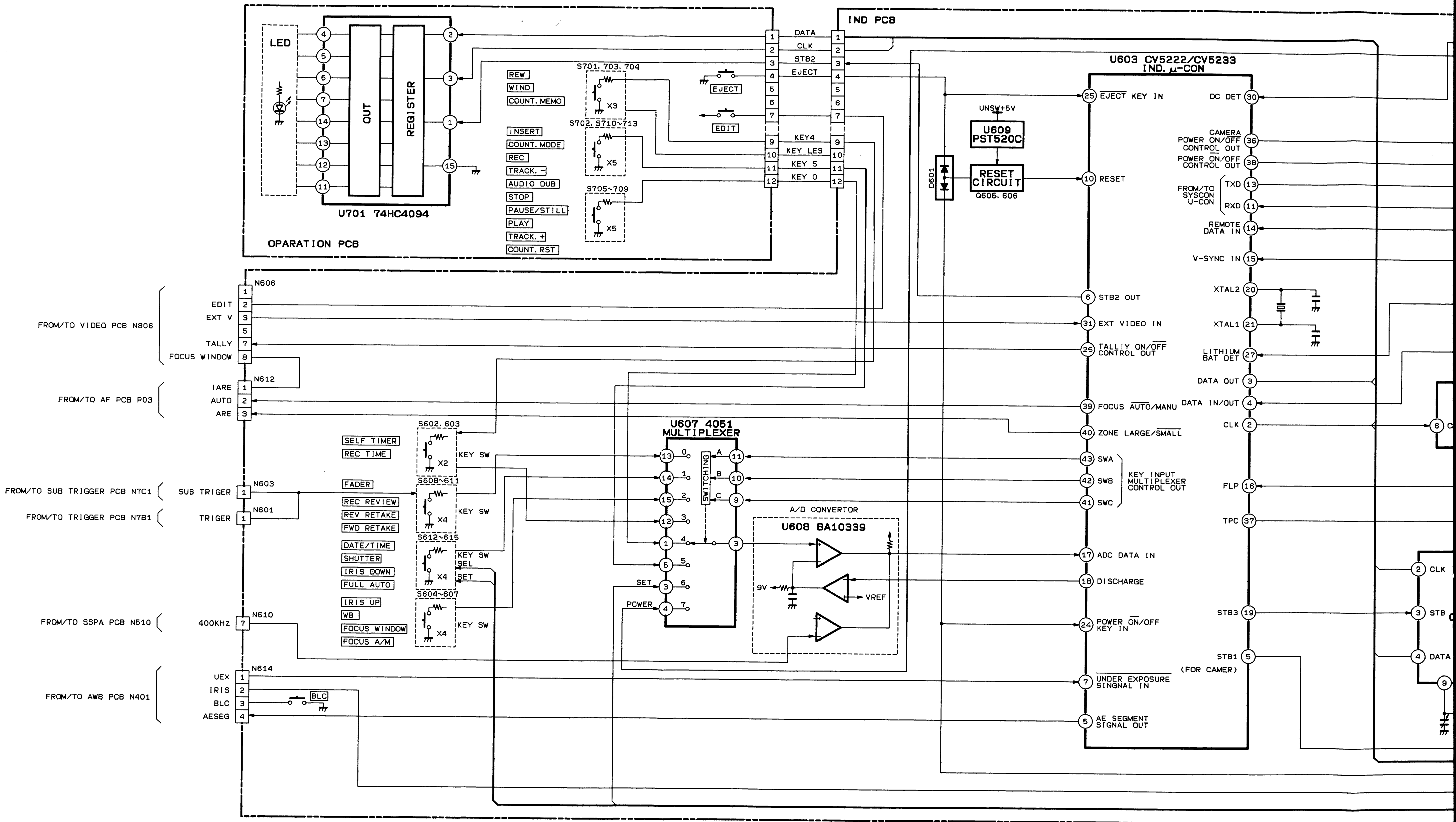
9-6. CAMERA BLOCK DIAGRAM

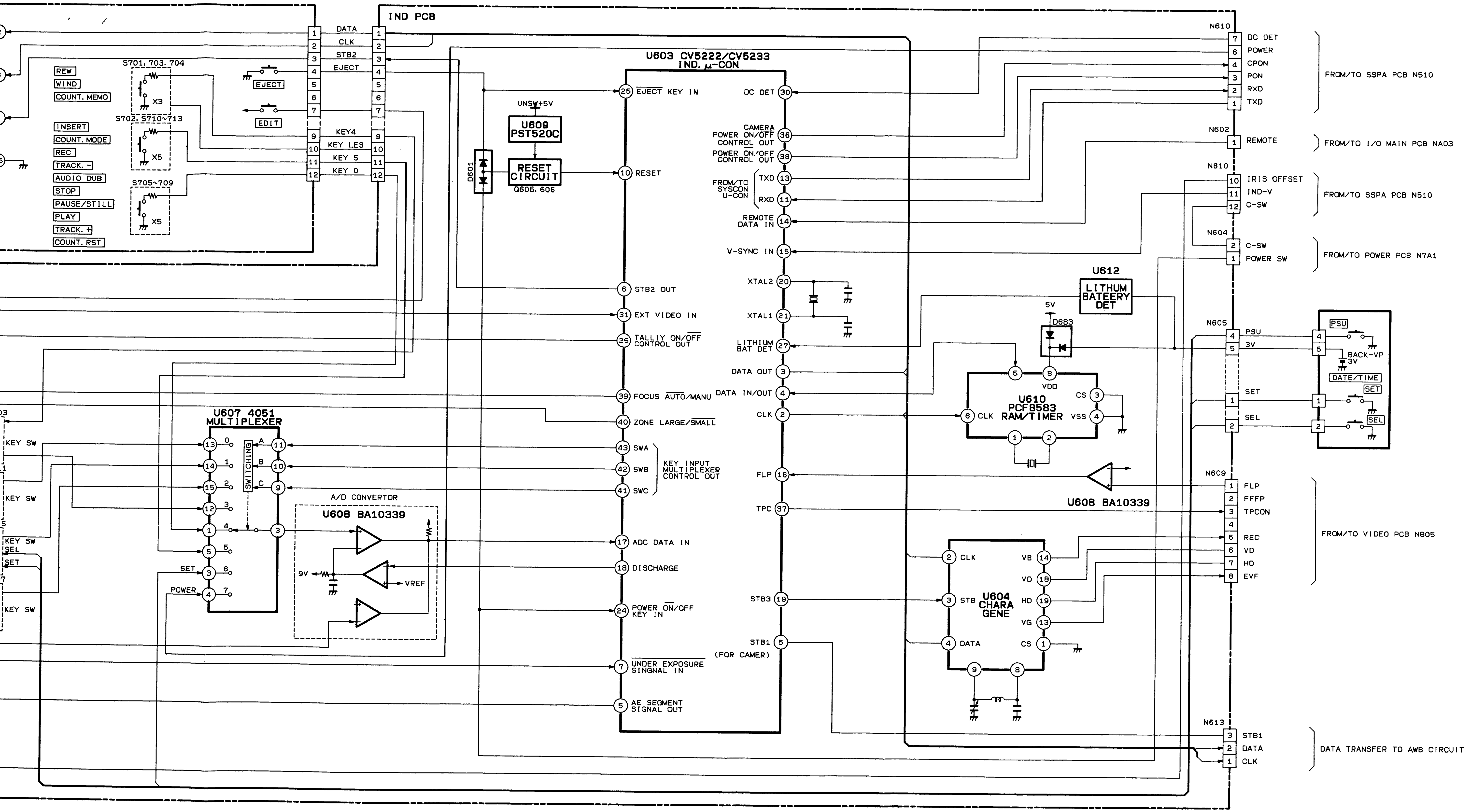

CH1=0.2V A=10µs
CH1=0.5V A=50ns
CH1=50mV A=10µs
CH1=0.1V A=10µs
CH1=1V A=50ns
CH1=2V A=10µs
CH1=1V A=0.1µs
FROM/TO IND PCB N607
GND. A
+5V
+9V
+15V
-8V
GND. D
GND. D
PROCESS PCB
N204
+9V
+5V
N001
N201
-8V
GND. D
+15V
CLK
+9V
CLK2
+5V
GND. D
SP1
GND. A
SP2
SS3
GND
SS2
VSUB
SS1
CDSO
VD
GND. A
HD
CDSG
CPOPB
GND. A
FH2
-8V
+15V
+9V
+5V
T218 CLK2
T215 CDSO
P201 BLOOMING
P202 CCD OUT
OB CLAMP
PEDESTAL OB SET
SH1
SH2
WB
B WB
CCD PCB
U004 CCD SYNC GENERATOR
VA1 VA2 VA3 VA4 CH1 CH2 VB1 VB2 VB3 VB4 CH8
SP1 SP2 CLK CLK2 SS3 SS2 SS1 VD HD CPOB FH2
DS1 DS2 R H1 H2
X001
V001 27MHz OSC
U003 MN3110SA V DRIVER
U002 MN3110SA V DRIVER
U001 IMAGE SENSOR
OVB4 OVB3 OVB2 OVB1 OVA4 OVA3 OVA2 OVA1
OH2 OH1 OR SUB
VO
Q001 EF
Q005-6 H DRIVE
Q007-8 H DRIVE
Q003-4 R DRIVE
U005 AN2012S CDS
S & H
VCA
TRAP
F001
T001 CCD OUT
ACT SENSOR PCB
U801 ACT SENSOR
U802 LOG AMP
VCC
N801
VLL GND B/G R/G VCC
ZOOM
ZOOM SW
N502
N501
N302
Q502-3
Q501-4
ZOOM
VBAT
U701 BU4094FP SERIAL TO PARALLEL
CLK DATA STB
WB1 WB2 AGCOFF SS3 SS2 SS1
FROM/TO IND PCB N613
N701
CLK DATA STB GND
U304 BA10324F
P301 AWB OFFSET
P304 AWB OFFSET
P302 R/G GAIN
P303 B/G GAIN
Q302-3 LIMIT
Q301-8 LIMIT
P308 WB OUTDOOR (R)
P307 WB FL (R)
P312 WB OUTDOOR (B)
P311 WB FL (B)
VREF
T328
U301 4052FP WB MODE SELECTOR
S W
Q304-5 FILTER
T326
P310 WB INDOOR (R)
U303 BA10324F
Q306-7 LIMIT
P306 TTL
U302 BA10324F
P309 WB INDOOR (B)
P305 TTL
VBAT
VCC
VREF
N301
AWB PCB
IRIS MOTOR
N402
DRIVE+ DRIVE- BRAKE+ BRAKE-
IRIS
U401 CLAMP
U402
U401 WEIGHTING AVERAGING
P401 IRIS
U402
Q401
VCC
FROM/TO IND PCB N614
N401
UEX IRIS OFFSET BLC AESEG VBAT GND
U401
VREF


FROM/TO IND PCB N607
GND. A
+5V
+9V
+15V
-8V
GND. D
GND. D
7 6 5 4 3 2 1
N204
CESS PCB
+9V
+5V
T218 CLK2
P105 PEDESTAL LEVEL
T110
U105
U104 4053P
VREF
P115 AGC GAIN
LP116 AGC OFFSET
PBLK
S W
T215 CD50
OB CLAMP
PEDESTAL OB SET
Y WHITE CLIP
GAMMA
+6 dB SWITCH
AGC
BUF
U103 AN2154FAP Y/C PROCESSING
SH1
SH2
WB
B WB
CLIP
GAMMA
AGC
R-Y MATRIX
B-Y MATRIX
P201 BLOOMING
LP202 CCD OUT
P111 FH2
P110 R-Y MTX
P109 B-Y MTX
F105 1MHz LPF
T101 YAGC
Q101-2
F101 TRAP 13.5MHz
Q103
T102 Y0H
U101 1H DELAY
P101 Y1H DL GAIN
Q106
+EF
F101 TRAP 13.5M
T103 Y1H
U102 1H DELAY
P104 Y2H DL GAIN
Q110
T106 Y2H
Q113
Q104-5
T201
N206
VD
HD
VBAT
GND
+5V
+9V
GND
Y AF
GND
FROM/TO AF PCB P01
F107 EQ
F108 LPF
F106 LPF
P114 YH LEVEL
Q115
Q112
T108
Q107
Q108
U102 H DELAY
P103
C1H DL GAIN
Q111
U102 H DELAY
P102
Q109
C2H DL GAIN
T104 C0H
T107 C1H
T105 C2H
P310 WB INDOOR (R)
Q306-7
LIMIT
24F
P309 WB INDOOR (B)
VBAT
VCC
VREF
SS3
VBAT
SS2
SS1
+5V
AGCOFF
GND. D
R GAIN
B GAIN
VREF
GND. A
R-Y
B-Y
YECS
WBLK
BY GC
RY GC
N301
N202
AWB PCB
CLK
VD
HD
U202 MN5150 SSG
1/1440
1/2
1/625
COMP DECODER
PHASE DETECT
VCO 4FSC
X201 17.76MHz
T243
P113 B-Y GAIN
F104 1MHz LPF
P112 R-Y GAIN
F109 DL
BF
U201 ENCODER
HAP
LOWL CLIP
VAP MIX
LOWL SUPP
ADD
VREF
BUF
MOD
GAIN CTRL
MIX
HUE
HLCC
FADE
PED CLIP
+6dB
SYNC MIX
F202 4.43 BPF
Q204
Q202
T226
T228
N203
Y OUT
GND
GND
C OUT
FADE
FROM/TO VIDEO PCB N803
P205 BURST PHASE
P204 COLOUR PHASE
F110 LPF
P203 HLCC
CH1=0.2V A=10µs
CH1=0.5V A=10µs
CH1=1V A=0.1µs
CH1=0.1V A=10µs
: Y SIGNAL LINE
: CHROMA SIGNAL LINE

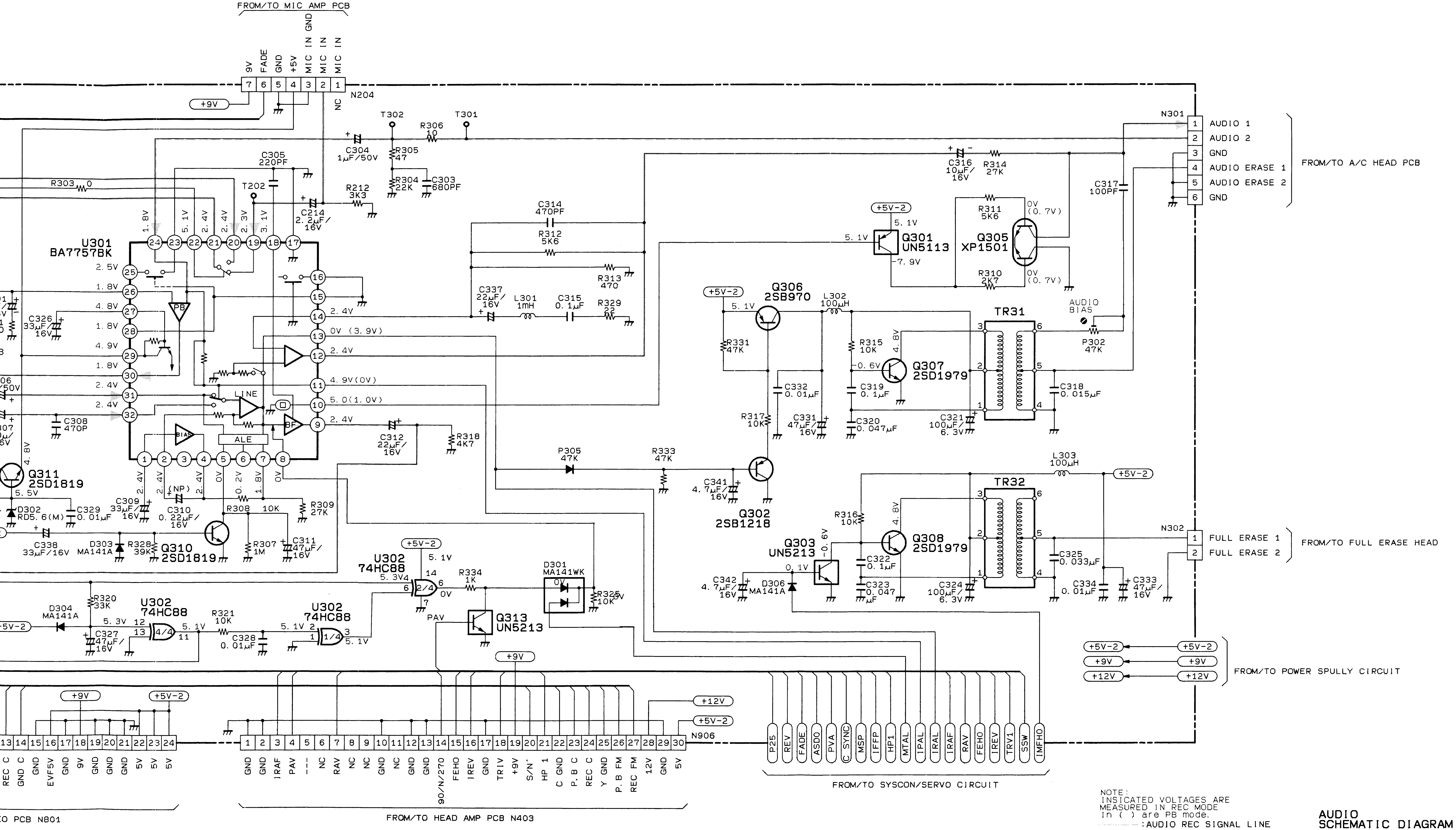
CAMERA BLOCK DIAGRAM

9-7. OPERATION BLOCK DIAGRAM


OPARATION PCB
LED
OUT
REGISTER
U701 74HC4094
REW
WIND
COUNT. MEMO
INSERT
COUNT. MODE
REC
TRACK. -
AUDIO DUB
STOP
PAUSE/STILL
PLAY
TRACK. +
COUNT. RST
S701, 703, 704
X3
S702, S710~713
X5
S705~709
X5
EJECT
EDIT
DATA
CLK
STB2
EJECT
KEY4
KEY LES
KEY 5
KEY 0
IND PCB
U603 CV5222/CV5233
IND. μ-CON
UNSW+5V
U609
PST520C
RESET
CIRCUIT
Q605, 606
D601
EJECT KEY IN
RESET
STB2 OUT
EXT VIDEO IN
TALLIY ON/OFF CONTROL OUT
FOCUS AUTO/MANU
ZONE LARGE/SMALL
SWA
SWB
SWC
KEY INPUT MULTIPLEXER CONTROL OUT
ADC DATA IN
DISCHARGE
POWER ON/OFF KEY IN
UNDER EXPOSURE SINGNAL IN
AE SEGMENT SIGNAL OUT
DC DET
CAMERA POWER ON/OFF CONTROL OUT
POWER ON/OFF CONTROL OUT
FROM/TO SYSCON U-CON
TXD
RXD
REMOTE DATA IN
V-SYNC IN
XTAL2
XTAL1
LITHIUM BAT DET
DATA OUT
DATA IN/OUT
CLK
FLP
TPC
STB3
STB1
(FOR CAMER)
CLK
STB
DATA
N606
FROM/TO VIDEO PCB N806
EDIT
EXT V
TALLY
FOCUS WINDOW
N612
FROM/TO AF PCB P03
IARE
AUTO
ARE
N603
FROM/TO SUB TRIGGER PCB N7C1
SUB TRIGER
N601
FROM/TO TRIGGER PCB N7B1
TRIGER
N610
FROM/TO SSPA PCB N510
400KHZ
N614
FROM/TO AWB PCB N401
UEX
IRIS
BLC
AESEG
BLC
S602, 603
SELF TIMER
REC TIME
X2
KEY SW
S608~611
FADER
REC REVIEW
REV RETAKE
FWD RETAKE
X4
KEY SW
S612~615
DATE/TIME
SHUTTER
IRIS DOWN
FULL AUTO
X4
KEY SW
SEL
SET
S604~607
IRIS UP
WB
FOCUS WINDOW
FOCUS A/M
X4
KEY SW
U607 4051
MULTIPLEXER
SWITCHING
A
B
C
SET
POWER
A/D CONVERTOR
U608 BA10339
9V
VREF


IND PCB
DATA
CLK
STB2
EJECT
KEY4
KEY LES
KEY 5
KEY 0
REW
WIND
COUNT. MEMO
S701, 703, 704
X3
S702, S710~713
X5
S705~709
X5
INSERT
COUNT. MODE
REC
TRACK. -
AUDIO DUB
STOP
PAUSE/STILL
PLAY
TRACK. +
COUNT. RST
EJECT
EDIT
D601
UNSW+5V
U609
PST520C
RESET
CIRCUIT
Q605, 606
U603 CV5222/CV5233
IND. μ-CON
EJECT KEY IN
RESET
STB2 OUT
EXT VIDEO IN
TALLIY ON/OFF CONTROL OUT
FOCUS AUTO/MANU
ZONE LARGE/SMALL
SWA
SWB
SWC
KEY INPUT MULTIPLEXER CONTROL OUT
ADC DATA IN
DISCHARGE
POWER ON/OFF KEY IN
UNDER EXPOSURE SINGNAL IN
AE SEGMENT SIGNAL OUT
DC DET
CAMERA POWER ON/OFF CONTROL OUT
POWER ON/OFF CONTROL OUT
FROM/TO SYSCON U-CON
TXD
RXD
REMOTE DATA IN
V-SYNC IN
XTAL2
XTAL1
LITHIUM BAT DET
DATA OUT
DATA IN/OUT
CLK
FLP
TPC
STB3
STB1
(FOR CAMER)
U607 4051
MULTIPLEXER
KEY SW
KEY SW
KEY SW
SEL
SET
KEY SW
SWITCHING
SET
POWER
A/D CONVERTOR
U608 BA10339
9V
VREF
U612
LITHUM BATEERY DET
5V
D683
VDD
U610
PCF8583
RAM/TIMER
CLK
CS
VSS
U608 BA10339
U604
CHARA
GENE
CLK
STB
DATA
VB
VD
HD
VG
CS
N610
DC DET
POWER
CPON
PON
RXD
TXD
FROM/TO SSPA PCB N510
N602
REMOTE
FROM/TO I/O MAIN PCB NA03
N810
IRIS OFFSET
IND-V
C-SW
FROM/TO SSPA PCB N510
N604
C-SW
POWER SW
FROM/TO POWER PCB N7A1
N605
PSU
3V
SET
SEL
PSU
BACK-VP 3V
DATE/TIME
SET
SEL
N609
FLP
FFFP
TPCON
REC
VD
HD
EVF
FROM/TO VIDEO PCB N805
N613
STB1
DATA
CLK
DATA TRANSFER TO AWB CIRCUIT

OPERATION BLOCK DIAGRAM


FROM/TO MIC AMP PCB
9V
FADE
GND
+5V
MIC IN GND
MIC IN
MIC IN
7 6 5 4 3 2 1
N204
NC
+9V
T302
T301
R306 10
C304 1µF/50V
R305 47
R304 22K
C303 680PF
R303 0
C305 220PF
T202
R212 3K3
C214 2.2µF/16V
U301
BA7757BK
PB
LINE
BIAS
ALE
BF
C326 33µF/16V
C308 470P
Q311 2SD1819
D302 RD5.6(M)
C329 0.01µF
C338 33µF/16V
D303 MA141A
R328 39K
Q310 2SD1819
C309 33µF/16V
C310 0.22µF/16V
(NP)
R308 10K
R307 1M
R309 27K
C311 47µF/16V
C314 470PF
R312 5K6
R313 470
C337 22µF/16V
L301 1mH
C315 0.1µF
R329 22
C312 22µF/16V
R318 4K7
P305 47K
R333 47K
C341 4.7µF/16V
Q302 2SB1218
Q301 UN5113
Q305 XP1501
R311 5K6
R310 2K7
0V (0.7V)
C316 10µF/16V
R314 27K
C317 100PF
AUDIO BIAS
P302 47K
Q306 2SB970
L302 100µH
R331 47K
R315 10K
Q307 2SD1979
C319 0.1µF
C320 0.047µF
C321 100µF/6.3V
C332 0.01µF
C331 47µF/16V
R317 10K
TR31
C318 0.015µF
N301
AUDIO 1
AUDIO 2
GND
AUDIO ERASE 1
AUDIO ERASE 2
GND
FROM/TO A/C HEAD PCB
TR32
L303 100µH
R316 10K
Q308 2SD1979
Q303 UN5213
C322 0.1µF
C323 0.047µF
C324 100µF/6.3V
C325 0.033µF
C334 0.01µF
C333 47µF/16V
C342 4.7µF/16V
D306 MA141A
N302
FULL ERASE 1
FULL ERASE 2
FROM/TO FULL ERASE HEAD
U302 74HC88
U302 74HC88
U302 74HC88
R334 1K
D301 MA141WK
R325 10K
Q313 UN5213
PAV
D304 MA141A
R320 33K
C327 47µF/16V
R321 10K
C328 0.01µF
+5V-2
+9V
+12V
FROM/TO POWER SPULLY CIRCUIT
REC C
GND C
GND
EVF5V
GND
9V
GND
GND
GND
5V
5V
5V
13 14 15 16 17 18 19 20 21 22 23 24
EO PCB N801
GND
GND
IRAF
PAV

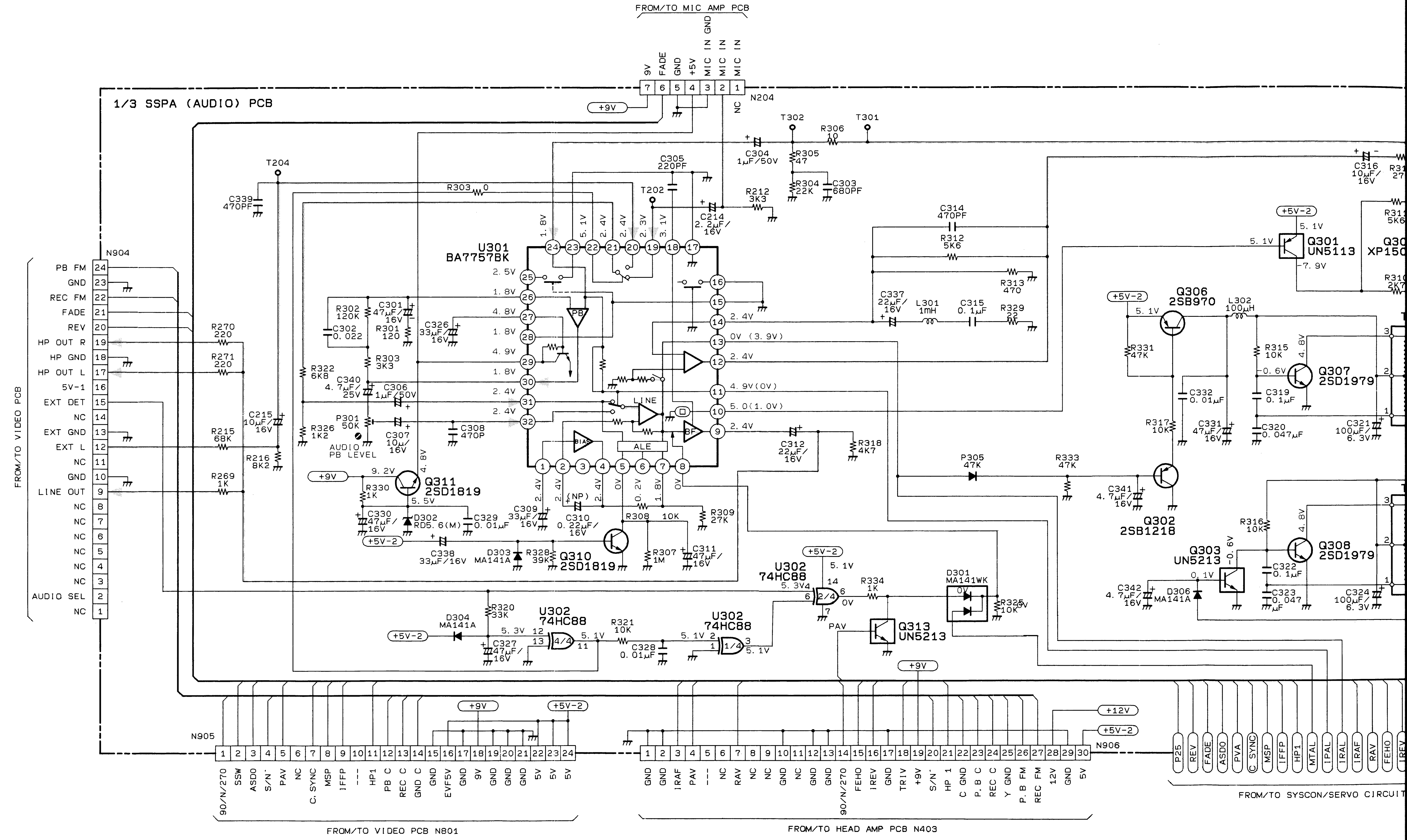
NC
RAV
NC
NC
GND
NC
GND
GND
90/N/270
FEHO
IREV
GND
TRIV
+9V
S/N'
HP 1
C GND
P.B C
REC C
Y GND
P.B FM
REC FM
12V
GND
5V
N906
FROM/TO HEAD AMP PCB N403
P25
REV
FADE
ASDO
PVA
C SYNC
MSP
IFFP
HP1
MTAL
IPAL
IRAL
IRAF
RAV
FEHO
IREV
TRV1
SSW
IMFHO
FROM/TO SYSCON/SERVO CIRCUIT

NOTE:
INSICATED VOLTAGES ARE
MEASURED IN REC MODE
In ( ) are PB mode.
:AUDIO REC SIGNAL LINE
:AUDIO PB SIGNAL LINE

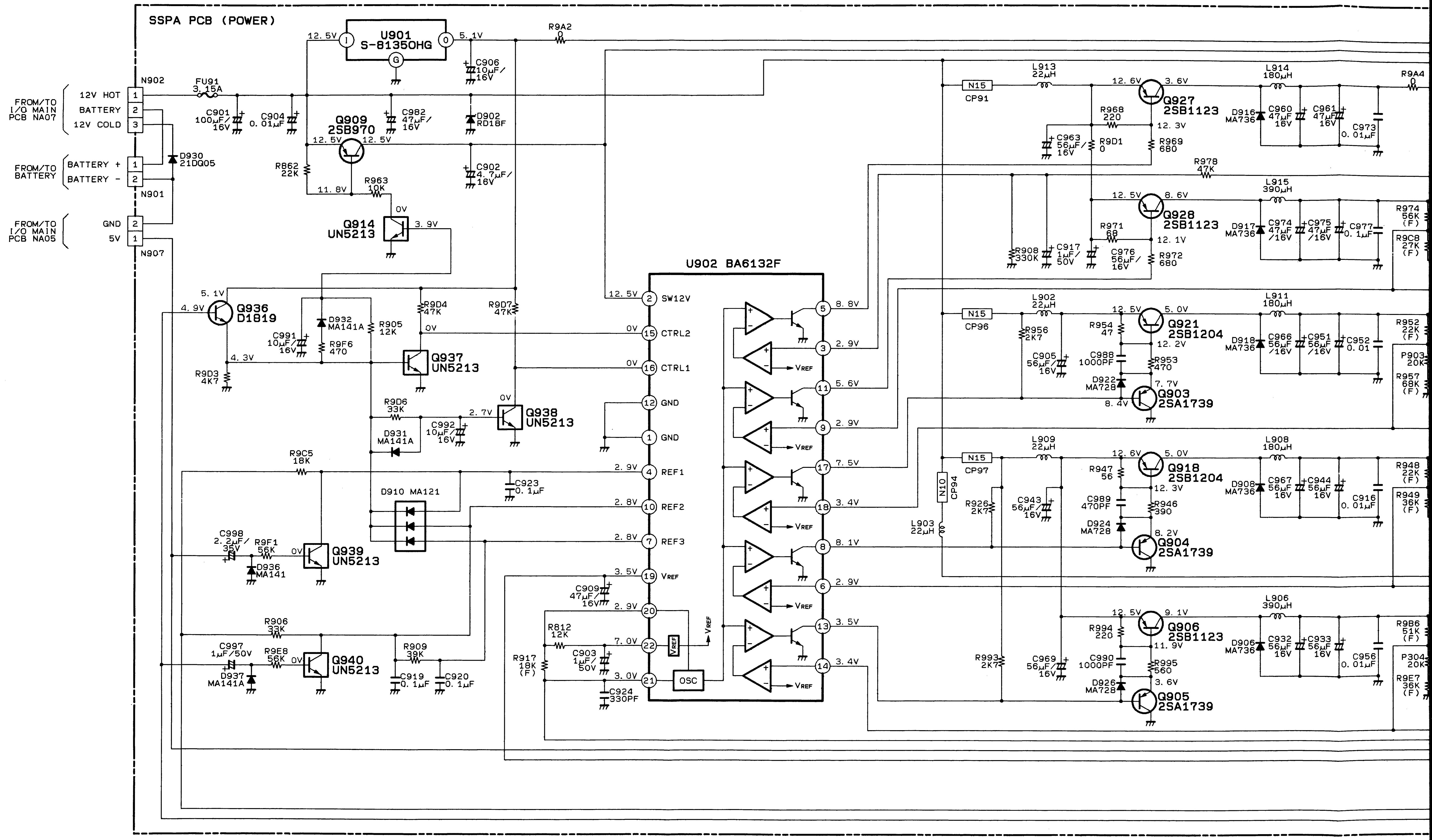
AUDIO
SCHEMATIC DIAGRAM
002G030429

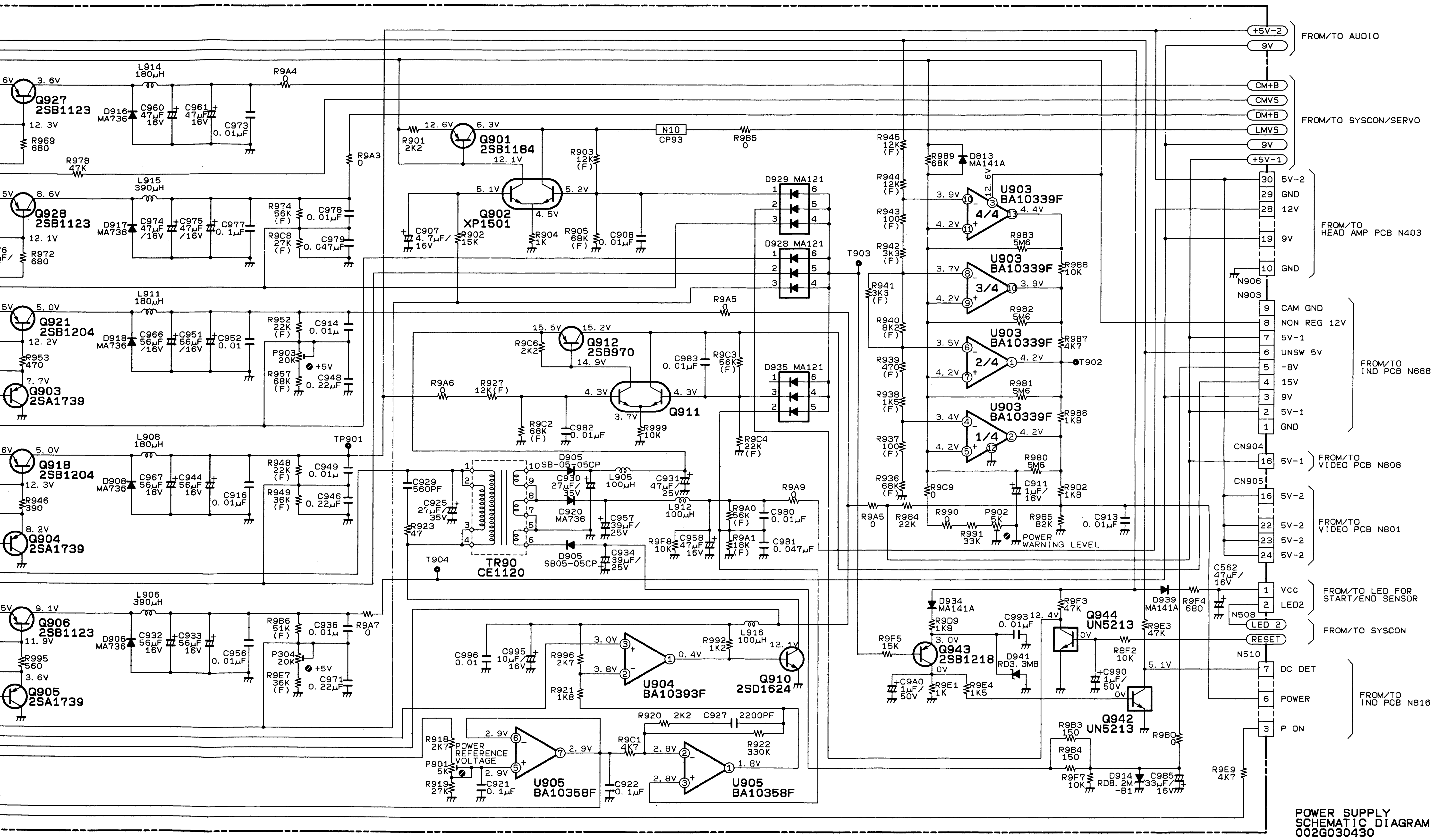
X. SCHEMATIC DIAGRAMS AND PC BOARDS

10-1. AUDIO SCHEMATIC DIAGRAM


FROM/TO MIC AMP PCB
9V
FADE
GND
+5V
MIC IN GND
MIC IN
MIC IN
N204
NC
1/3 SSPA (AUDIO) PCB
+9V
T302
T301
R306 10
C304 1μF/50V
R305 47
R304 22K
C303 680PF
C305 220PF
T204
T202
R212 3K3
C214 2.2μF/16V
C339 470PF
R303 0
U301
BA7757BK
PB
LINE
BIAS
ALE
BF
R302 120K
C301 47μF/16V
R301 120
C302 0.022
C326 33μF/16V
R303 3K3
R322 6K8
C340 4.7μF/25V
C306 1μF/50V
P301 50K
AUDIO PB LEVEL
R326 1K2
C307 10μ/16V
C308 470P
C215 10μF/16V
R216 8K2
Q311 2SD1819
R330 1K
C330 47μF/16V
D302 RD5.6(M)
C329 0.01μF
C309 33μF/16V
C310 0.22μF/16V
R308 10K
R309 27K
R307 1M
C311 47μF/16V
C338 33μF/16V
D303 MA141A
R328 39K
Q310 2SD1819
C312 22μF/16V
R318 4K7
C314 470PF
R312 5K6
R313 470
C337 22μF/16V
L301 1mH
C315 0.1μF
R329 22
P305 47K
R333 47K
U302 74HC88
R334 1K
D301 MA141WK
R325 10K
Q313 UN5213
PAV
D304 MA141A
R320 33K
C327 47μF/16V
R321 10K
C328 0.01μF
+5V-2
C316 10μF/16V
Q301 UN5113
Q306 2SB970
L302 100μH
R331 47K
R315 10K
Q307 2SD1979
C319 0.1μF
C320 0.047μF
C321 100μF/6.3V
C332 0.01μF
R317 10K
C331 47μF/16V
C341 4.7μF/16V
Q302 2SB1218
R316 10K
Q303 UN5213
Q308 2SD1979
C322 0.1μF
C323 0.047μF
C324 100μF/6.3V
C342 4.7μF/16V
D306 MA141A
N904
FROM/TO VIDEO PCB
PB FM
GND
REC FM
FADE
REV
HP OUT R
HP GND
HP OUT L
5V-1
EXT DET
NC
EXT GND
EXT L
NC
GND
LINE OUT
NC
AUDIO SEL
R270 220
R271 220
R215 68K
R269 1K
N905
90/N/270
SSW
ASDO
S/N'
PAV
NC
C.SYNC
MSP
IFFP
HP1
PB C
REC C
GND C
GND
EVF5V
9V
5V
FROM/TO VIDEO PCB N801
N906
+12V
IRAF
RAV
FEHO
IREV
TRIV
+9V
HP 1
C GND
P.B C
REC C
Y GND
P.B FM
REC FM
12V
FROM/TO HEAD AMP PCB N403
P25
REV
FADE
ASDO
PVA
C SYNC
MSP
IFFP
HP1
MTAL
IPAL
IRAL
IRAF
RAV
FEHO
FROM/TO SYSCON/SERVO CIRCUIT

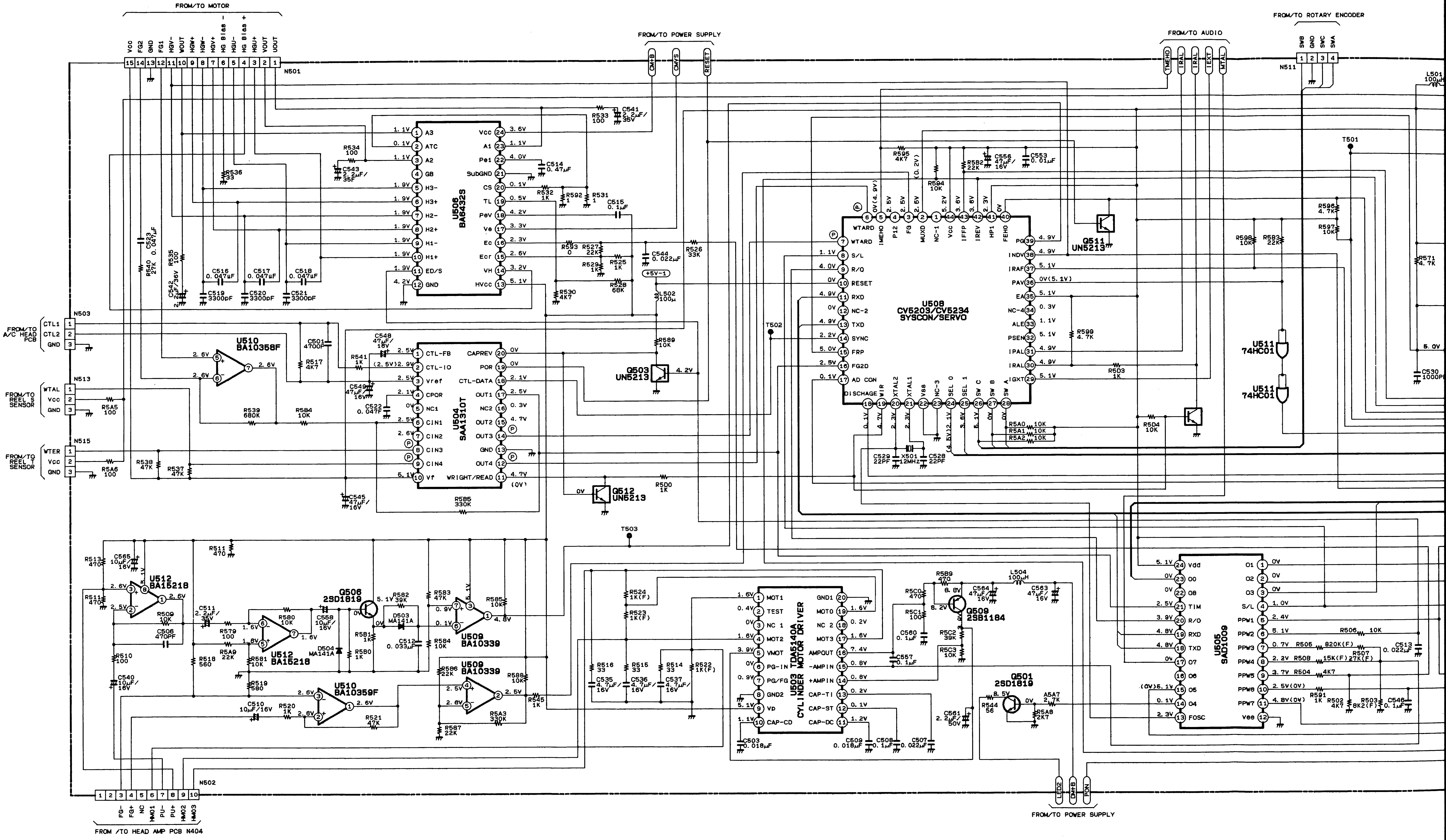
10-2. POWER SUPPLY SCHEMATIC DIAGRAM

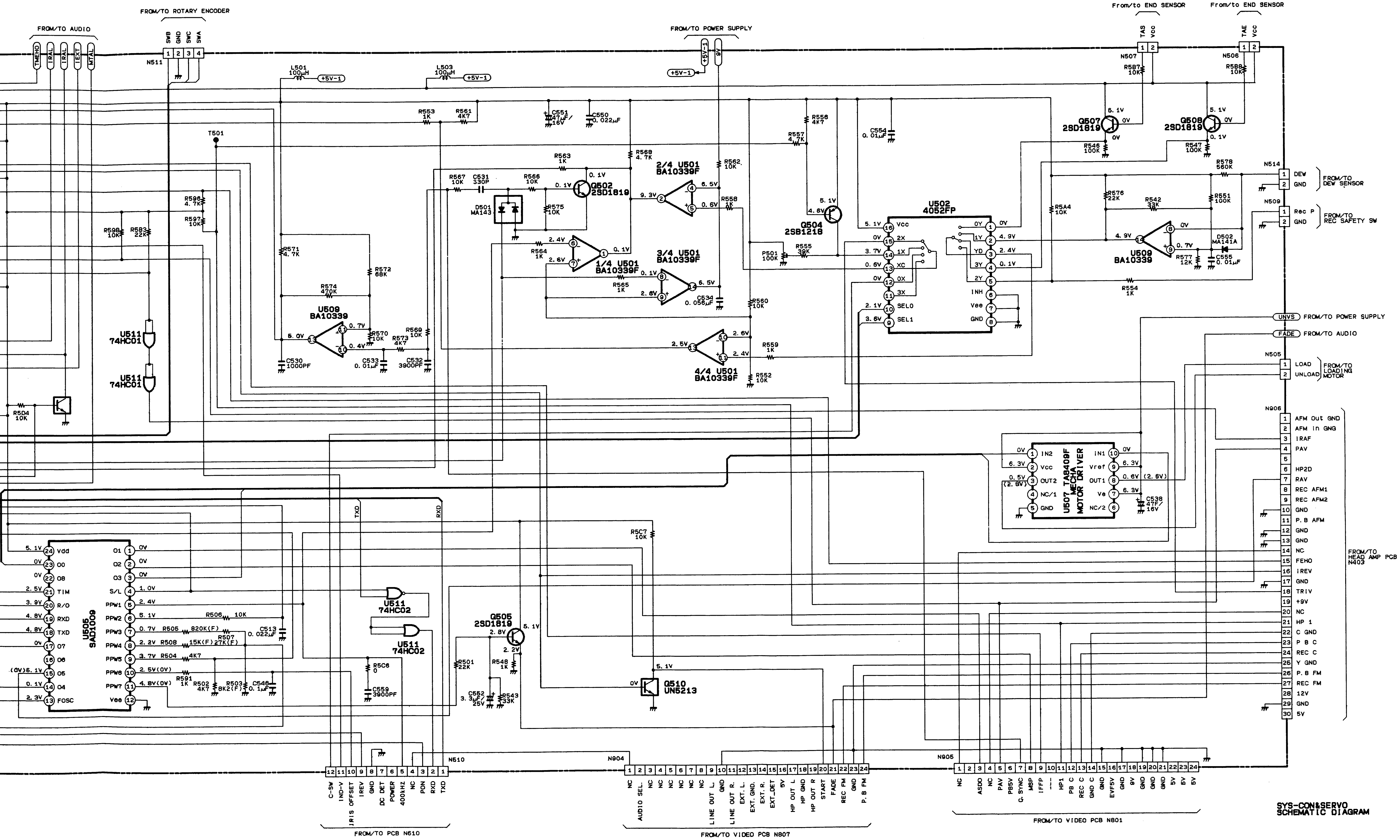

SSPA PCB (POWER)
FROM/TO I/O MAIN PCB NA07
12V HOT
BATTERY
12V COLD
N902
FROM/TO BATTERY
BATTERY +
BATTERY -
N901
FROM/TO I/O MAIN PCB NA05
GND
5V
N907
FU91 3.15A
D930 21DQ05
C901 100µF/16V
C904 0.01µF
U901 S-81350HG
12.5V
5.1V
C906 10µF/16V
C982 47µF/16V
D902 RD18F
Q909 2SB970
12.5V
R862 22K
C902 4.7µF/16V
11.8V
R963 10K
0V
Q914 UN5213
3.9V
R9A2 0
5.1V
Q936 D1819
4.9V
4.3V
R9D3 4K7
C991 10µF/16V
D932 MA141A
R9F6 470
R905 12K
R9D4 47K
R9D7 47K
0V
Q937 UN5213
R9D6 33K
D931 MA141A
C992 10µF/16V
2.7V
0V
Q938 UN5213
R9C5 18K
D910 MA121
C923 0.1µF
C998 2.2µF/35V
R9F1 56K
D936 MA141
0V
Q939 UN5213
R906 33K
C997 1µF/50V
R9E8 56K
D937 MA141A
0V
Q940 UN5213
R909 39K
C919 0.1µF
C920 0.1µF
U902 BA6132F
12.5V
2 SW12V
0V
15 CTRL2
0V
16 CTRL1
12 GND
1 GND
2.9V
4 REF1
2.8V
10 REF2
2.8V
7 REF3
3.5V
19 VREF
C909 47µF/16V
2.9V
20
R812 12K
7.0V
22
C903 1µF/50V
R917 18K (F)
3.0V
21
C924 330PF
VREF
OSC
5 8.8V
3 2.9V
11 5.6V
9 2.9V
17 7.5V
18 3.4V
8 8.1V
6 2.9V
13 3.5V
14 3.4V
N15 CP91
L913 22µH
12.6V
3.6V
Q927 2SB1123
R968 220
12.3V
C963 56µF/16V
R9D1 0
R969 680
D916 MA736
L914 180µH
C960 47µF/16V
C961 47µF/16V
C973 0.01µF
R9A4 0
R978 47K
12.5V
8.6V
Q928 2SB1123
R971 68
12.1V
R908 330K
C917 1µF/50V
C976 56µF/16V
R972 680
L915 390µH
D917 MA736
C974 47µF/16V
C975 47µF/16V
C977 0.1µF
R974 56K (F)
R9C8 27K (F)
N15 CP96
L902 22µH
12.5V
5.0V
Q921 2SB1204
R956 2K7
R954 47
12.2V
C905 56µF/16V
C988 1000PF
R953 470
D922 MA728
7.7V
8.4V
Q903 2SA1739
L911 180µH
D918 MA736
C966 56µF/16V
C951 56µF/16V
C952 0.01
R952 22K (F)
P903 20K
R957 68K (F)
N15 CP97
N10 CP94
L909 22µH
12.6V
5.0V
Q918 2SB1204
R947 56
12.3V
R926 2K7
C943 56µF/16V
C989 470PF
R946 390
D924 MA728
8.2V
Q904 2SA1739
L903 22µH
L908 180µH
D908 MA736
C967 56µF/16V
C944 56µF/16V
C916 0.01µF
R948 22K (F)
R949 36K (F)
12.5V
9.1V
Q906 2SB1123
R994 220
11.9V
R993 2K7
C969 56µF/16V
C990 1000PF
R995 560
D926 MA728
3.6V
Q905 2SA1739
L906 390µH
D906 MA736
C932 56µF/16V
C933 56µF/16V
C956 0.01µF
R9B6 51K (F)
P304 20K
R9E7 36K (F)


+5V-2
9V
FROM/TO AUDIO
CM+B
CMVS
DM+B
LMVS
9V
+5V-1
FROM/TO SYSCON/SERVO
30 5V-2
29 GND
28 12V
19 9V
10 GND
N906
FROM/TO HEAD AMP PCB N403
N903
9 CAM GND
8 NON REG 12V
7 5V-1
6 UNSW 5V
5 -8V
4 15V
3 9V
2 5V-1
1 GND
FROM/TO IND PCB N688
CN904
16 5V-1
FROM/TO VIDEO PCB N808
CN905
16 5V-2
22 5V-2
23 5V-2
24 5V-2
FROM/TO VIDEO PCB N801
C562 47μF/16V
1 Vcc
2 LED2
N508
FROM/TO LED FOR START/END SENSOR
LED 2
RESET
FROM/TO SYSCON
N510
7 DC DET
6 POWER
3 P ON
FROM/TO IND PCB N816
Q927 2SB1123
Q928 2SB1123
Q921 2SB1204
Q903 2SA1739
Q918 2SB1204
Q904 2SA1739
Q906 2SB1123
Q905 2SA1739
L914 180μH
L915 390μH
L911 180μH
L908 180μH
L906 390μH
D916 MA736
D917 MA736
D918 MA736
D908 MA736
D906 MA736
R9A4 0
R978 47K
R969 680
R972 680
R953 470
R946 390
R995 560
R9A3 0
TP901
R974 56K (F)
R9C8 27K (F)
R952 22K (F)
P903 20K
R957 68K (F)
R948 22K (F)
R949 36K (F)
R9B6 51K (F)
P304 20K
R9E7 36K (F)
R9A7 0
Q901 2SB1184
R901 2K2
Q902 XP1501
R902 15K
R904 1K
C907 4.7μF/16V
R903 12K (F)
R905 68K (F)
C908 0.01μF
N10 CP93
R9B5 0
D929 MA121
D928 MA121
D935 MA121
T903
R9A5 0
Q912 2SB970
R9C6 2K2
Q911
R9A6 0
R927 12K (F)
R9C2 68K (F)
C982 0.01μF
R999 10K
C983 0.01μF
R9C3 56K (F)
R9C4 22K (F)
TR90 CE1120
T904
C929 560PF
C925 27μF/35V
R923 47
D905 SB-05-05CP
C930 27μF/35V
D920 MA736
L905 100μH
C931 47μF/25V
L912 100μH
C957 39μF/25V
C934 39μF/25V
R9F8 10K
C958 47μF/16V
R9A0 56K (F)
R9A1 18K (F)
C980 0.01μF
C981 0.047μF
R9A9 0
U904 BA10393F
Q910 2SD1624
L916 100μH
R992 1K2
R996 2K7
R921 1K8
C996 0.01
C995 10μF/16V
U905 BA10358F
R918 2K7
POWER REFERENCE VOLTAGE
P901 5K
R919 27K
C921 0.1μF
C922 0.1μF
R9C1 4K7
R920 2K2
C927 2200PF
R922 330K
U903 BA10339F
R945 12K (F)
R944 12K (F)
R943 100 (F)
R942 3K3 (F)
R941 3K3 (F)
R940 8K2 (F)
R939 470 (F)
R938 1K5 (F)
R937 100 (F)
R936 68K (F)
R989 68K
D813 MA141A
R983 5M6
R982 5M6
R981 5M6
R980 5M6
R988 10K
R987 4K7
R986 1K8
R9D2 1K8
T902
R9C9 0
C911 1μF/16V
R990 0
R991 33K
P902 5K
POWER WARNING LEVEL
R985 82K
C913 0.01μF
R984 22K
Q943 2SB1218
R9F5 15K
D934 MA141A
R9D9 1K8
C993 0.01μF
D941 RD3.3MB
C9A0 1μF/50V
R9E1 1K
R9E4 1K5
Q944 UN5213
R9F3 47K
R9E3 47K
R8F2 10K
C990 1μF/50V
Q942 UN5213
D939 MA141A
R9F4 680
R9B3 150
R9B4 150
R9F7 10K
D914 RD8.2M-B1
C985 33μF/16V
R9B0 0
R9E9 4K7

POWER SUPPLY SCHEMATIC DIAGRAM 002G030430

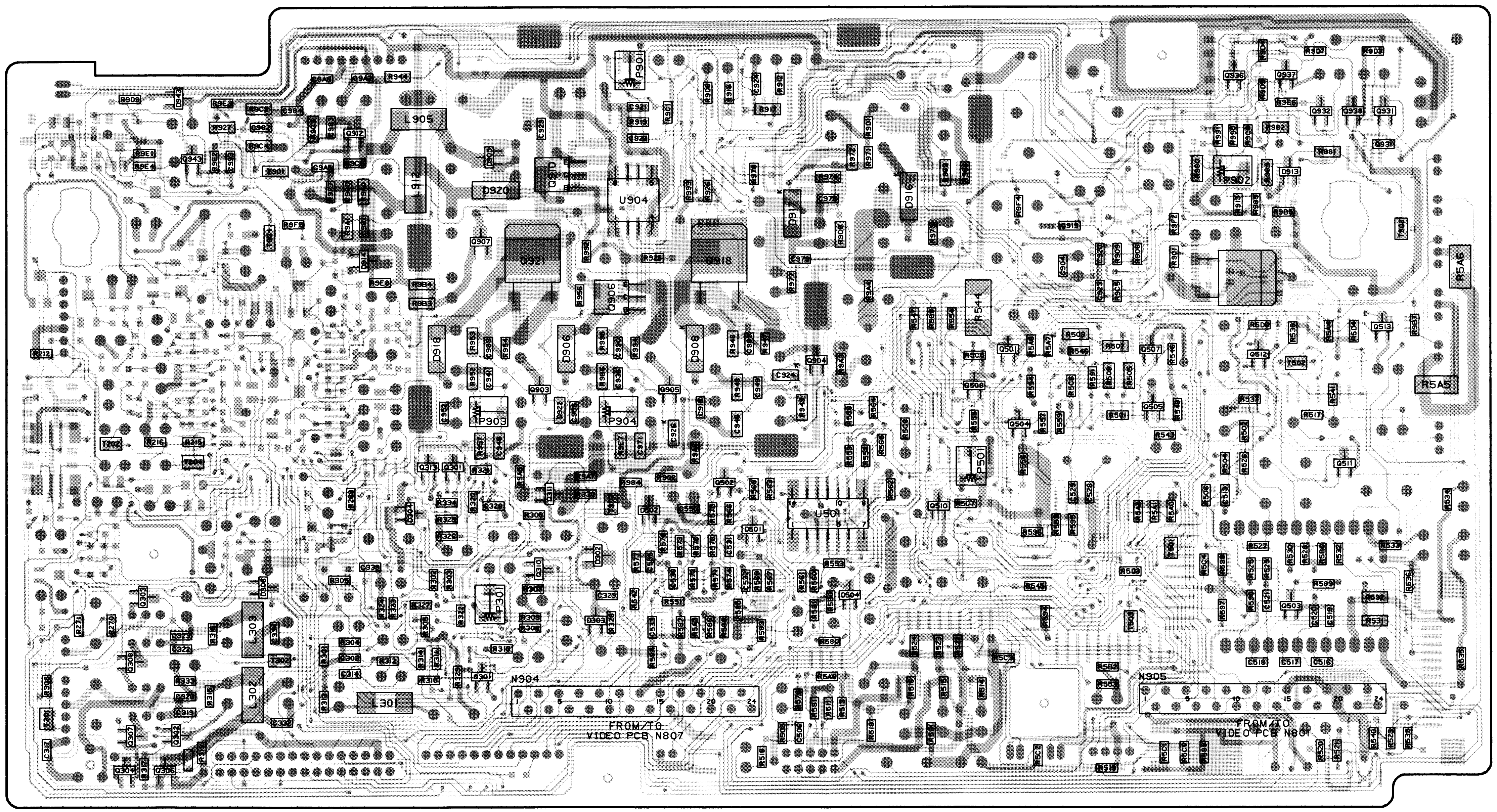
10-3. SYSCON AND SERVO SCHEMATIC DIAGRAM


FROM/TO MOTOR
N501
FROM/TO POWER SUPPLY
CM+B
CM/S
RESET
FROM/TO AUDIO
TMEHO
IRAL
IRAL
IEXT
MTAL
FROM/TO ROTARY ENCODER
SWB
GND
SWC
SWA
N511
L501
T501
U506
BA6432S
U508
CV5203/CV5234
SYSCON/SERVO
Q511
UN5213
U511
74HC01
N503
FROM/TO A/C HEAD PCB
CTL1
CTL2
GND
U510
BA10358F
U504
SAA1310T
Q503
UN5213
T502
N513
FROM/TO REEL S SENSOR
WTAL
Vcc
GND
N515
FROM/TO REEL T SENSOR
WTER
Vcc
GND
Q512
UN5213
T503
U512
BA15218
Q506
2SD1819
D503
MA141A
D504
MA141A
U509
BA10339
U510
BA10359F
U503
TDA5140A
CYLINDER MOTOR DRIVER
Q509
2SB1184
L504
Q501
2SD1819
U505
SAD1009
N502
FG-
FG+
NC
HM01
PU-
PU+
HM02
HM03
FROM /TO HEAD AMP PCB N404
LED2
DM+B
PON
FROM/TO POWER SUPPLY

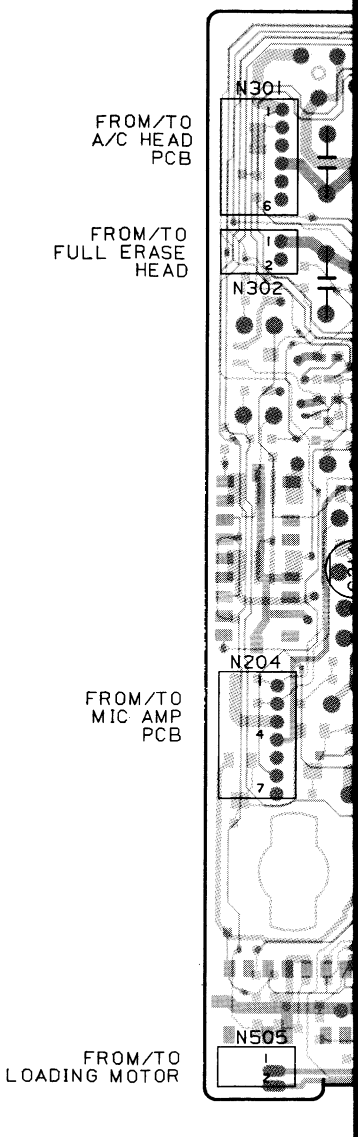

FROM/TO AUDIO
TMEHO
IRAL
IRAL
IEXT
MTAL
FROM/TO ROTARY ENCODER
SWB GND SWC SWA
N511
FROM/TO POWER SUPPLY
+5V-1
9V
L501 100μH
L503 100μH
T501
R553 1K
R561 4K7
C551 47μF/16V
C550 0.022μF
R563 1K
R568 4.7K
R567 10K
C531 330P
R566 10K
Q502 2SD1819
D501 MA143
R575 10K
2/4 U501 BA10339F
3/4 U501 BA10339F
1/4 U501 BA10339F
4/4 U501 BA10339F
R562 10K
R558 1K
R564 1K
R565 1K
C534 0.056μF
R560 10K
R559 1K
R552 10K
R596 4.7K
R597 10K
R598 10K
R583 22K
R571 4.7K
R572 68K
R574 470K
U509 BA10339
R570 10K
R573 4K7
R569 10K
C530 1000PF
C533 0.01μF
C532 3900PF
U511 74HC01
U511 74HC01
R504 10K
R556 4K7
R557 4.7K
C554 0.01μF
Q504 2SB1218
P501 100K
R555 39K
U502 4052FP
Vcc 2X 1X XC 0X 3X SEL0 SEL1
0Y 1Y YD 3Y 2Y INH Vee GND
From/to END SENSOR
TAS Vcc
N507
R587 10K
Q507 2SD1819
R546 100K
From/to END SENSOR
TAE Vcc
N506
R588 10K
Q508 2SD1819
R547 100K
R578 560K
R576 22K
R542 33K
R551 100K
R5A4 10K
U509 BA10339
D502 MA141A
R577 12K
C555 0.01μF
R554 1K
N514
DEW GND FROM/TO DEW SENSOR
N509
Rec P GND FROM/TO REC SAFETY SW
UNVS FROM/TO POWER SUPPLY
FADE FROM/TO AUDIO
N505
LOAD UNLOAD FROM/TO LOADING MOTOR
N906
1 AFM Out GND
2 AFM In GNG
3 IRAF
4 PAV
5
6 HP2D
7 RAV
8 REC AFM1
9 REC AFM2
10 GND
11 P.B AFM
12 GND
13 GND
14 NC
15 FEHO
16 IREV
17 GND
18 TRIV
19 +9V
20 NC
21 HP 1
22 C GND
23 P B C
24 REC C
25 Y GND
26 P.B FM
27 REC FM
28 12V
29 GND
30 5V
FROM/TO HEAD AMP PCB N403
U507 TA8409F MECHA MOTOR DRIVER
IN2 Vcc OUT2 NC/1 GND IN1 Vref OUT1 Vs NC/2
C538 47F/16V
U505 SAD1009
Vdd O0 O8 TIM R/O RXD TXD O7 O6 O5 O4 FOSC
O1 O2 O3 S/L PPW1 PPW2 PPW3 PPW4 PPW5 PPW6 PPW7 Vee
R506 10K
R505 820K(F)
R507 27K(F)
R508 15K(F)
R504 4K7
R591 1K
R502 4K7
R503 8K2(F)
C513 0.022μF
C546 0.1μF
TXD
RXD
U511 74HC02
U511 74HC02
R5C6 0
C559 3900PF
Q505 2SD1819
R501 22K
R548 1K
C552 3.3μF/25V
R543 33K
R5C7 10K
Q510 UN5213
N610
C-SW IND-V IRIS OFFSET IREV GND DC DET POWER 400kHz NC PON RXD TXD
FROM/TO PCB N610
N904
NC AUDIO SEL. NC NC NC NC NC NC LINE OUT L. GND LINE OUT R. EXT.L. EXT.GND. EXT.R. EXT_DET 5V HP OUT L HP GND HP OUT R START FADE REC FM GND P.B FM
FROM/TO VIDEO PCB N807
N905
NC NC ASDO NC PAV PBSV G.SYNC MSP IFFP --- HP1 PB C REC C GND C EVF5V GND 9V GND GND GND 5V 5V 5V
FROM/TO VIDEO PCB N801

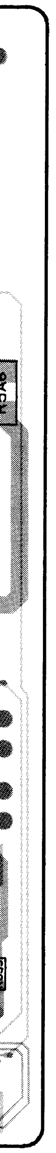
SYS-CON&SERVO SCHEMATIC DIAGRAM

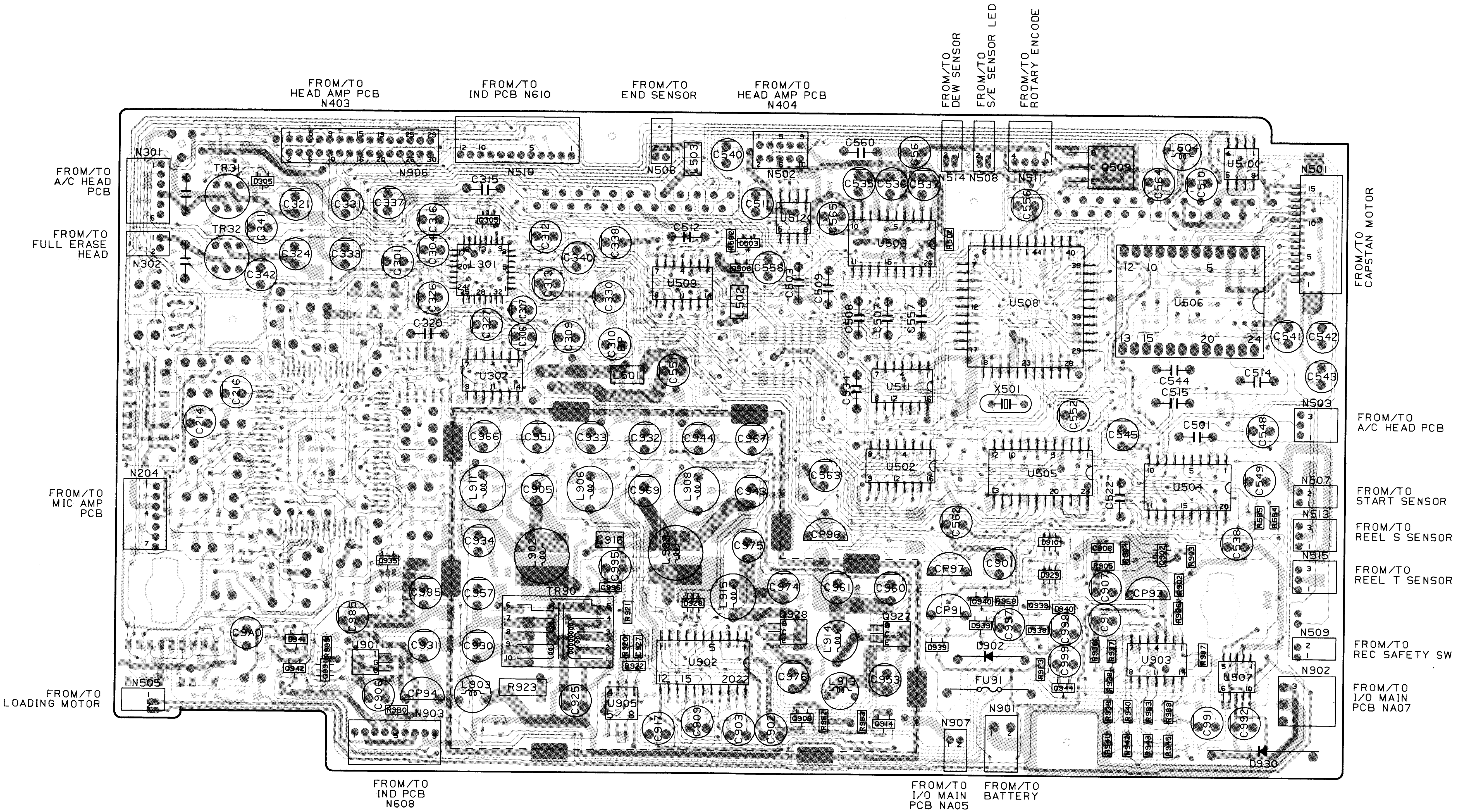
10-4. SSPA PC BOARD


N904
FROM/TO
VIDEO PCB N807
N905
FROM/TO
VIDEO PCB N801
U501
U904
Q921
Q918
P901
P902
P903
P904
P501
L905
L912
L303
L302
L301
D920
D916
D917
D918
D906
D908
R5A5
R5A6
R544

SSPA PCB WB002G0105 (B SIDE)

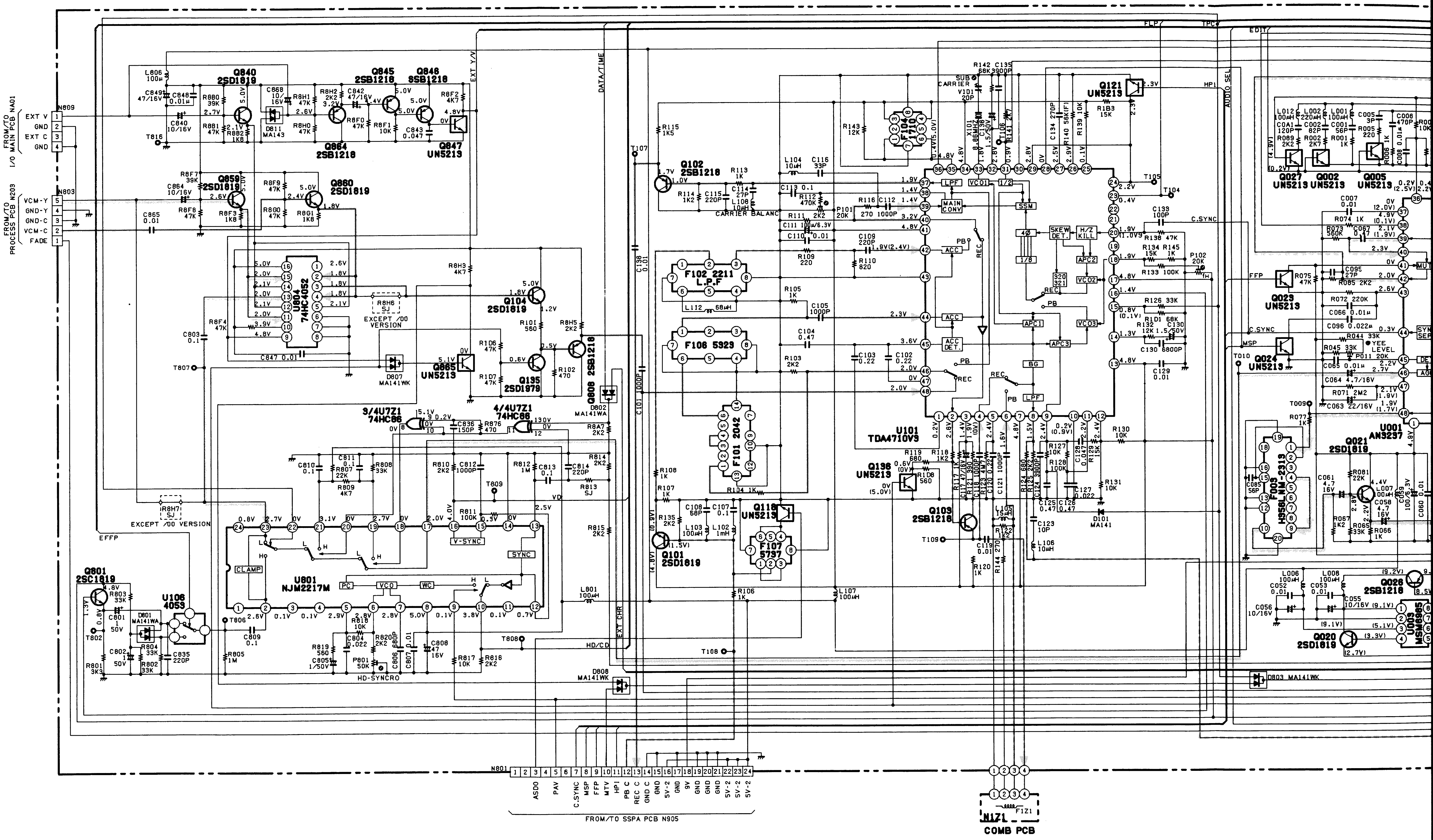

N301
FROM/TO
A/C HEAD
PCB
N302
FROM/TO
FULL ERASE
HEAD
N204
FROM/TO
MIC AMP
PCB
N505
FROM/TO
LOADING MOTOR

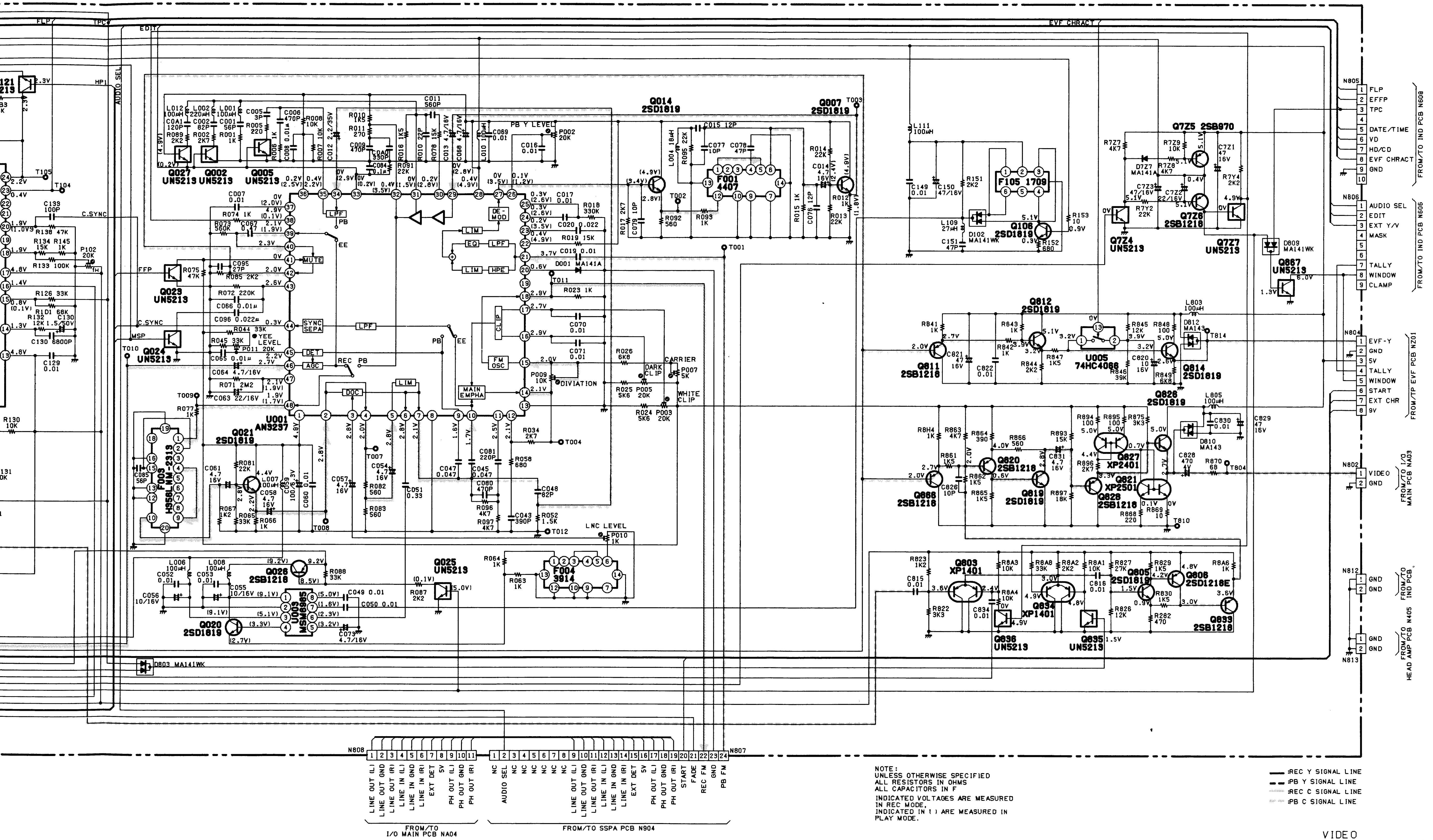



FROM/TO
HEAD AMP PCB
N403
FROM/TO
IND PCB N610
FROM/TO
END SENSOR
FROM/TO
HEAD AMP PCB
N404
FROM/TO
DEW SENSOR
FROM/TO
S/E SENSOR LED
FROM/TO
ROTARY ENCODE
FROM/TO
CAPSTAN MOTOR
FROM/TO
A/C HEAD
PCB
FROM/TO
FULL ERASE
HEAD
FROM/TO
MIC AMP
PCB
FROM/TO
LOADING MOTOR
FROM/TO
IND PCB
N608
FROM/TO
I/O MAIN
PCB NA05
FROM/TO
BATTERY
FROM/TO
A/C HEAD PCB
FROM/TO
START SENSOR
FROM/TO
REEL S SENSOR
FROM/TO
REEL T SENSOR
FROM/TO
REC SAFETY SW
FROM/TO
I/O MAIN
PCB NA07
N301
N302
N204
N505
N903
N906
N510
N506
N502
N514
N508
N511
N501
N503
N507
N513
N515
N509
N902
N907
N901
TR31
TR32
TR90
U301
U302
U509
U512
U503
U508
U506
U511
U502
U505
U504
U510
U902
U903
U905
U507
Q509
X501
FU91
D902
D930
L301
L501
L502
L503
L504
L902
L903
L906
L908
L909
L911
L913
L914
L915
L916
R923
CP91
CP93
CP94
CP96
CP97

SSPA PCB W8002G0105 (A SIZE)

10-5. VIDEO SCHEMATIC DIAGRAM


FROM/TO I/O MAIN PCB NA01
N809
EXT V
GND
EXT C
GND
FROM/TO PROCESS PCB N203
N803
VCM-Y
GND-Y
GND-C
VCM-C
FADE
Q840 2SD1819
Q845 2SB1218
Q846 2SB1218
Q864 2SB1218
Q847 UN5213
Q859 2SD1819
Q860 2SD1819
U804 74HC4052
R8H6 SJ
EXCEPT /00 VERSION
Q104 2SD1819
Q865 UN5213
Q135 2SD1979
Q808 2SB1218
D807 MA141WK
D811 MA143
3/4U7Z1 74HC86
4/4U7Z1 74HC86
D802 MA141WA
EXT Y/V
DATA/TIME
R8H7 SJ
EXCEPT /00 VERSION
EFFP
U801 NJM2217M
CLAMP
V-SYNC
SYNC
PC
VCO
WC
HD-SYNCRO
Q801 2SC1819
U106 4053
D801 MA141WA
HD/CD
EXT CHR
D808 MA141WK
Q102 2SB1218
CARRIER BALANC
F102 2211 L.P.F
F106 5923
F101 2042
Q101 2SD1819
Q118 UN5213
F107 5797
F104 1710
Q121 UN5213
U101 TDA4710V3
Q136 UN5213
Q103 2SB1218
D101 MA141
LPF
VCO1
1/2
MAIN CONV
SSM
ACC
ACC DET.
SKEW DET.
H/Z KILL
APC2
VCO2
APC1
APC3
VCO3
BG
SUB CARRIER
AUDIO SEL
FLP
TPC
EDIT
HP1
C.SYNC
Q027 UN5213
Q002 UN5213
Q005 UN5213
Q023 UN5213
Q024 UN5213
FFP
MSP
U001 AN3237
Q021 2SD1819
F003 H356LNM-2319
Q026 2SB1218
Q020 2SD1819
U003 MSM6965
D803 MA141WK
YEE LEVEL
N801
ASDO
PAV
C.SYNC
MSP
FFP
MTV
HP1
PB C
REC C
GND C
GND
5V-2
9V
GND
GND
GND
5V-2
5V-2
5V-2
FROM/TO SSPA PCB N905
N171
F171
COMB PCB

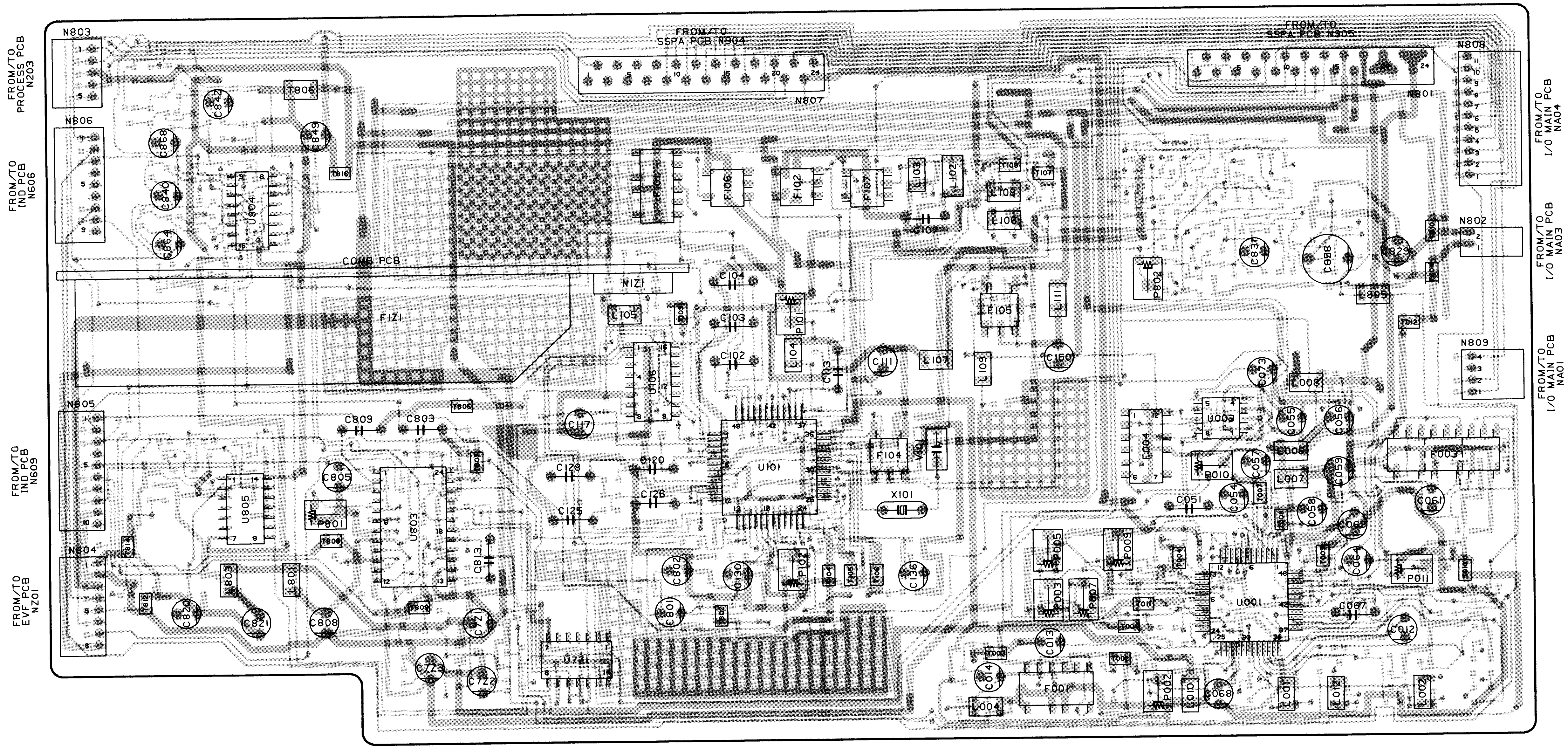

N805
1 FLP
2 EFFP
3 TPC
4
5 DATE/TIME
6 VD
7 HD/CD
8 EVF CHRACT
9 GND
10
FROM/TO IND PCB N608
N806
1 AUDIO SEL
2 EDIT
3 EXT Y/V
4 MASK
5
6
7 TALLY
8 WINDOW
9 CLAMP
FROM/TO IND PCB N606
N804
1 EVF-Y
2 GND
3 5V
4 TALLY
5 WINDOW
6 START
7 EXT CHR
8 9V
FROM/TP EVF PCB NZ01
N802
1 VIDEO
2 GND
FROM/TO I/O MAIN PCB NA03
N812
1 GND
2 GND
FROM/TO IND PCB
N813
1 GND
2 GND
FROM/TO HEAD AMP PCB N405
N808
1 LINE OUT (L)
2 LINE OUT GND
3 LINE OUT (R)
4 LINE IN (L)
5 LINE IN GND
6 LINE IN (R)
7 EXT DET
8 5V
9 PH OUT (L)
10 PH OUT GND
11 PH OUT (R)
FROM/TO I/O MAIN PCB NA04
N807
1 NC
2 AUDIO SEL
3 NC
4 NC
5 NC
6 NC
7 NC
8 NC
9 LINE OUT (L)
10 LINE OUT GND
11 LINE OUT (R)
12 LINE IN (L)
13 LINE IN GND
14 LINE IN (R)
15 EXT DET
16 5V
17 PH OUT (L)
18 PH OUT GND
19 PH OUT (R)
20 START
21 FADE
22 REC FM
23 GND
24 PB FM
FROM/TO SSPA PCB N904
U001 AN3297
U003 MSM6895
U005 74HC4066
F001 4407
F003 NM-2319
F004 3914
F105 1709
Q014 2SD1819
Q007 2SD1819
Q027 UN5213
Q002 UN5213
Q005 UN5213
Q023 UN5213
Q024 UN5213
Q021 2SD1819
Q026 2SB1218
Q020 2SD1819
Q025 UN5213
Q106 2SD1819
Q7Z5 2SB970
Q7Z4 UN5213
Q7Z6 2SB1218
Q7Z7 UN5213
Q867 UN5213
Q812 2SD1819
Q811 2SB1218
Q814 2SD1819
Q826 2SD1819
Q827 XP2401
Q821 XP2501
Q820 2SB1218
Q819 2SD1819
Q828 2SB1218
Q866 2SB1218
Q803 XP1401
Q834 XP1401
Q805 2SD1819
Q806 2SD1218E
Q839 2SB1218
Q836 UN5213
Q835 UN5213
D803 MA141WK
D809 MA141WK
D102 MA141WK
D001 MA141A
D810 MA143
D812 MA143
SYNC SEPA
MUTE
DET
AGC
LPF
DOC
LIM
EQ
HPF
DE-MOD
FM OSC
MAIN EMPHA
CLIP
DARK CLIP
WHITE CLIP
CARRIER
DIVIATION
YEE LEVEL
PB Y LEVEL
LNC LEVEL
FLP
TPC
EDIT
EVF CHRACT
AUDIO SEL
C.SYNC
FFP
MSP
HP1
REC
PB
EE

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN F
INDICATED VOLTAGES ARE MEASURED
IN REC MODE.
INDICATED IN ( ) ARE MEASURED IN
PLAY MODE.

:REC Y SIGNAL LINE
:PB Y SIGNAL LINE
:REC C SIGNAL LINE
:PB C SIGNAL LINE

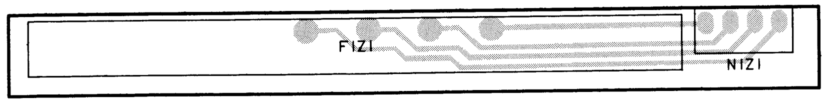
VIDEO
SCHEMATIC DIAGRAM
003G030509

10-6. VIDEO PC BOARD

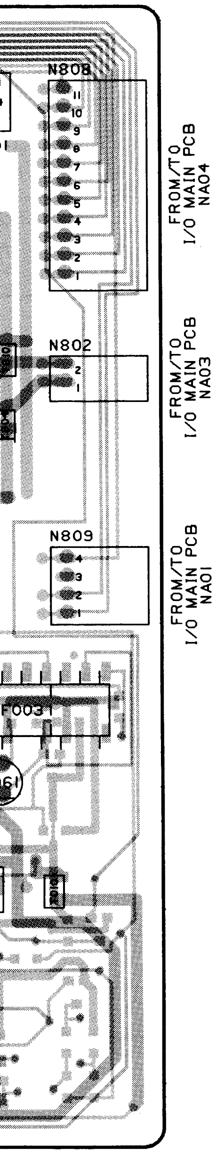


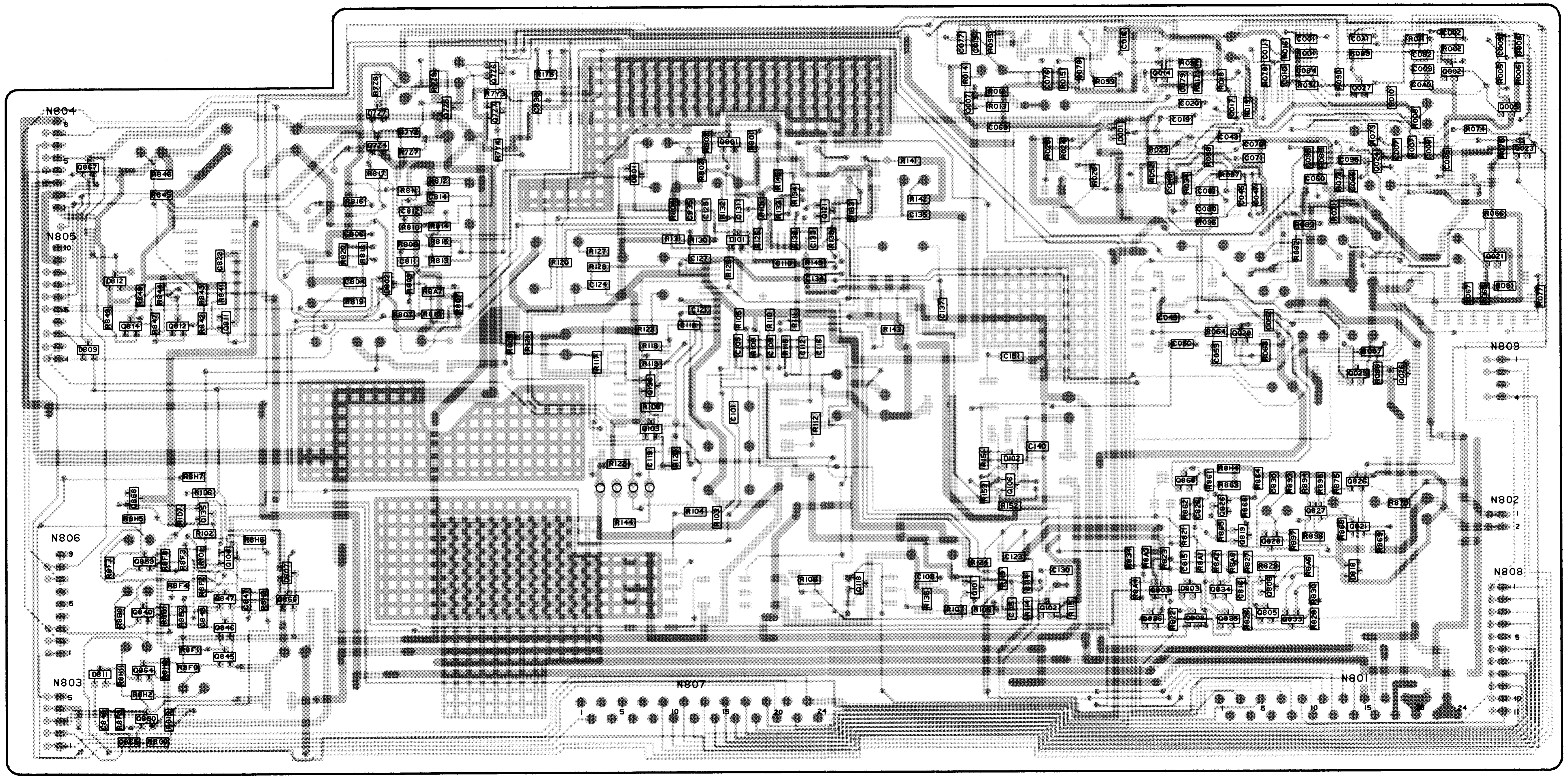
FROM/TO SSPA PCB N904
N807
FROM/TO SSPA PCB N305
N801
N808
FROM/TO I/O MAIN PCB NA04
N802
FROM/TO I/O MAIN PCB NA03
N809
FROM/TO I/O MAIN PCB NA01
N803
FROM/TO PROCESS PCB N203
N806
FROM/TO IND PCB N606
N805
FROM/TO IND PCB N609
N804
FROM/TO EVF PCB N201
COMB PCB
F121
N121
U101
U001
U003
U106
U721
U803
U804
U805
X101
F001
F003
F004
F101
F102
F104
F105
F106
F107
P001
P002
P003
P005
P007
P009
P010
P011
P101
P102
P801
P802
L001
L002
L004
L006
L007
L008
L010
L012
L101
L102
L103
L104
L105
L106
L107
L108
L109
L111
L801
L803
L805
T806
T816
C842
C849
C868
C840
C864
C805
C808
C809
C803
C813
C820
C821
C801
C802
C721
C722
C723
C888
C829
C831
C073
C055
C056
C057
C059
C054
C058
C061
C062
C064
C067
C012
C013
C014
C068
C051
C111
C113
C117
C120
C125
C126
C128
C130
C136
C150
C102
C103
C104
C107

VIDEO PCB WB002G4225 (A SIDE)



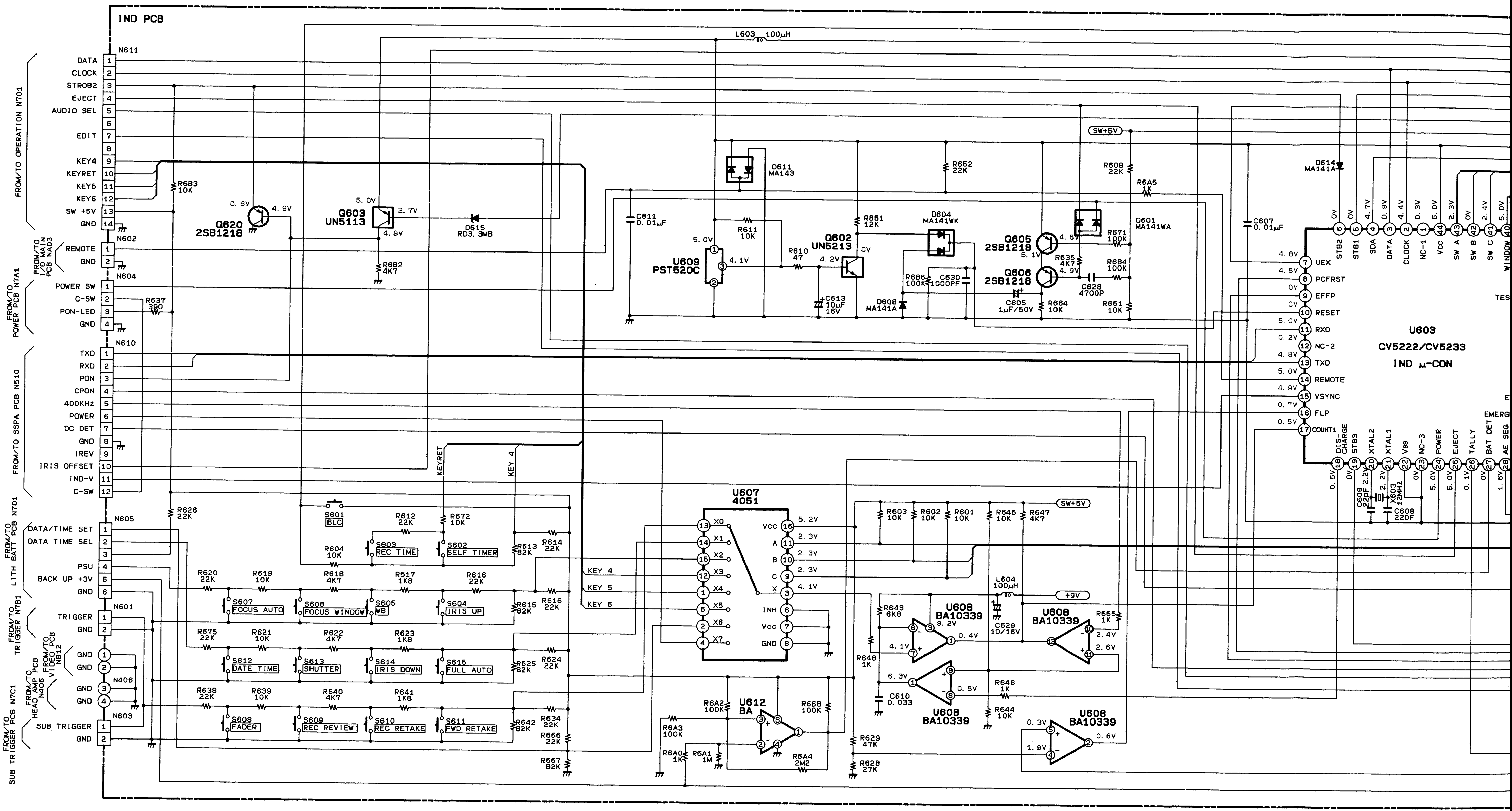
COMB PCB WB002G30F0 (VIEW FROM PATTERN SIDE)

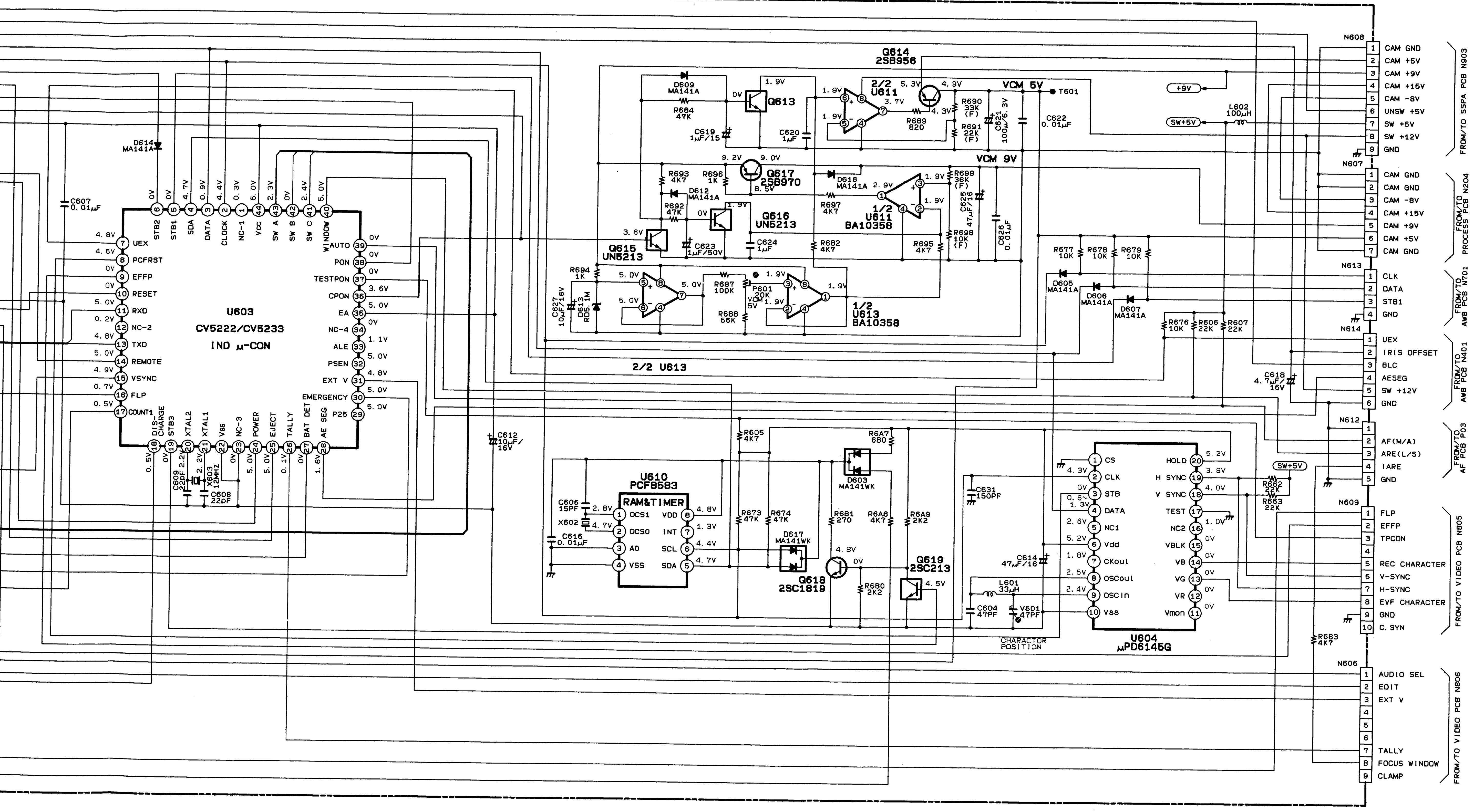

N808
N802
N809
FROM/TO I/O MAIN PCB NA04
FROM/TO I/O MAIN PCB NA03
FROM/TO I/O MAIN PCB NA01
F003


N804
N805
N806
N803
N807
N801
N809
N802
N808
C140
C151
C135
C137
R141
R142
R143
R144
R104
R112
D101
D102

VIDEL PCB WB002G4225 (B SIDE)

10-7. IND SCHEMATIC DIAGRAM

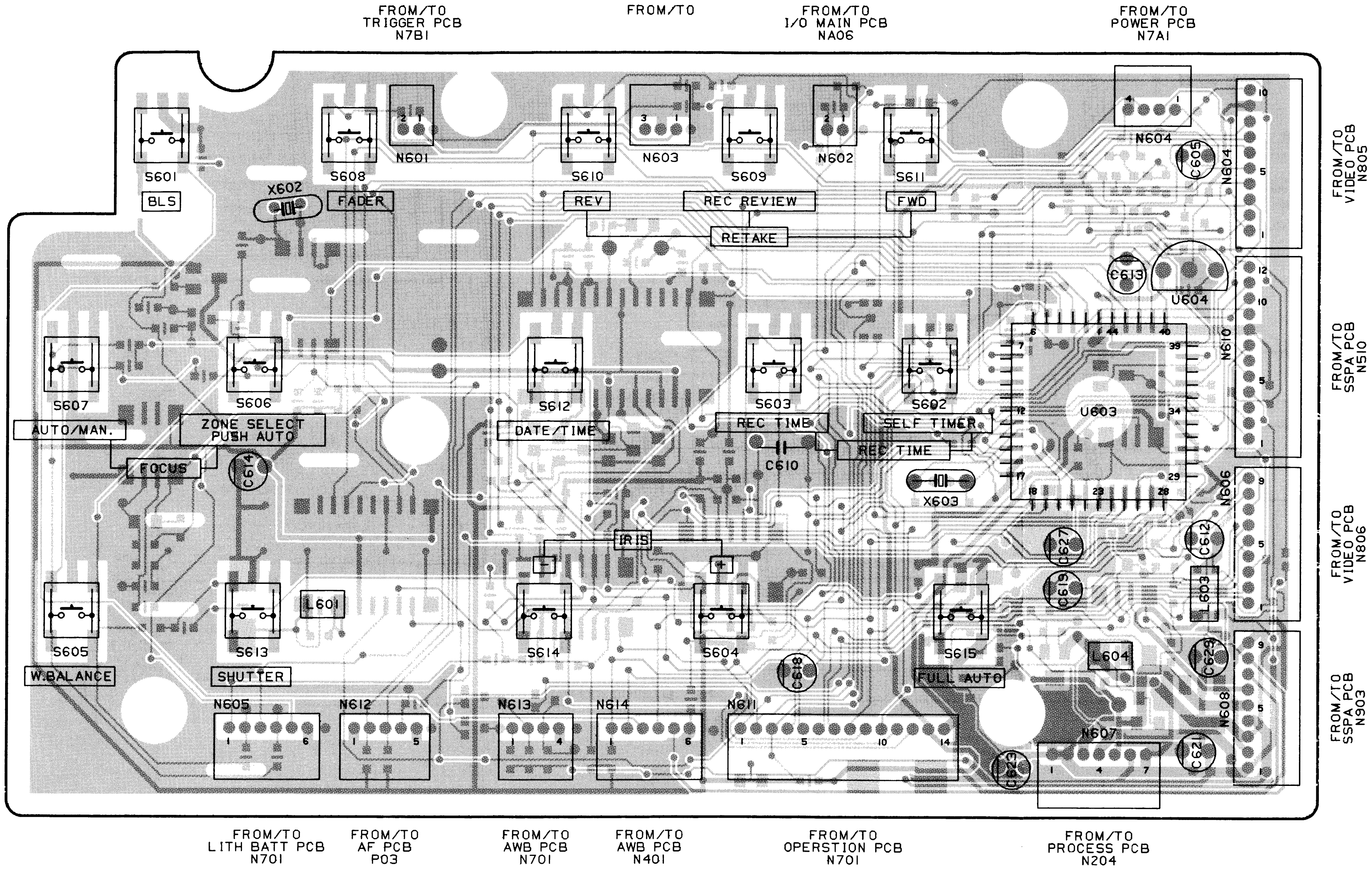

IND PCB
N611
DATA
CLOCK
STROB2
EJECT
AUDIO SEL
EDIT
KEY4
KEYRET
KEY5
KEY6
SW +5V
GND
FROM/TO OPERATION N701
N602
REMOTE
FROM/TO I/O MAIN PCB NA03
N604
POWER SW
C-SW
PON-LED
FROM/TO POWER PCB N7A1
N610
TXD
RXD
PON
CPON
400KHZ
POWER
DC DET
IREV
IRIS OFFSET
IND-V
FROM/TO SSPA PCB N510
N605
DATA/TIME SET
DATA TIME SEL
PSU
BACK UP +3V
FROM/TO LITH BATT PCB N701
N601
TRIGGER
FROM/TO TRIGGER N7B1
FROM/TO VIDEO PCB N812
N406
FROM/TO HEAD AMP PCB N7C1
N603
SUB TRIGGER
FROM/TO SUB TRIGGER PCB N1
R637 390
R683 10K
Q620 2SB1218
0.6V
4.9V
Q603 UN5113
5.0V
2.7V
R682 4K7
D615 RD3.3MB
L603 100μH
D611 MA143
C611 0.01μF
U609 PST520C
R611 10K
R610 47
Q602 UN5213
R651 12K
R652 22K
D604 MA141WK
C613 10μF 16V
D608 MA141A
R685 100K
C630 1000PF
Q605 2SB1218
Q606 2SB1218
C605 1μF/50V
R664 10K
C628 4700P
R636 4K7
R608 22K
R6A5 1K
R671 100K
R684 100K
R661 10K
D601 MA141WA
SW+5V
C607 0.01μF
D614 MA141A
U603
CV5222/CV5233
IND μ-CON
UEX
PCFRST
EFFP
RESET
RXD
NC-2
TXD
REMOTE
VSYNC
FLP
COUNT1
STB2
STB1
SDA
DATA
CLOCK
NC-1
Vcc
SW A
SW B
SW C
WINDOW
DIS-CHARGE
STB3
XTAL2
XTAL1
Vss
NC-3
POWER
EJECT
TALLY
BAT DET
AE SEG
C609 22DF
X603 12MHz
C608 22DF
KEYRET
KEY 4
KEY 5
KEY 6
R626 22K
S601 BLC
R612 22K
R672 10K
S603 REC TIME
S602 SELF TIMER
R604 10K
R613 82K
R614 22K
R620 22K
R619 10K
R618 4K7
R517 1K8
R616 22K
S607 FOCUS AUTO
S606 FOCUS WINDOW
S605 WB
S604 IRIS UP
R615 82K
R616 22K
R675 22K
R621 10K
R622 4K7
R623 1K8
S612 DATE TIME
S613 SHUTTER
S614 IRIS DOWN
S615 FULL AUTO
R625 82K
R624 22K
R638 22K
R639 10K
R640 4K7
R641 1K8
S608 FADER
S609 REC REVIEW
S610 REC RETAKE
S611 FWD RETAKE
R642 82K
R634 22K
R666 22K
R667 82K
U607 4051
X0 X1 X2 X3 X4 X5 X6 X7
Vcc A B C X INH Vcc GND
5.2V 2.3V 2.3V 2.3V 4.1V
R603 10K
R602 10K
R601 10K
R645 10K
R647 4K7
L604 100μH
+9V
R643 6K8
U608 BA10339
9.2V
0.4V
C629 10/16V
R665 1K
2.4V
2.6V
R648 1K
6.3V
C610 0.033
0.5V
R646 1K
R644 10K
0.3V
0.6V
1.9V
U612 BA
R6A2 100K
R668 100K
R6A3 100K
R6A0 1K
R6A1 1M
R6A4 2M2
R629 47K
R628 27K


U603
CV5222/CV5233
IND μ-CON
UEX
PCFRST
EFFP
RESET
RXD
NC-2
TXD
REMOTE
VSYNC
FLP
COUNT1
STB2
STB1
SDA
DATA
CLOCK
NC-1
Vcc
SW A
SW B
SW C
WINDOW
AUTO
PON
TESTPON
CPON
EA
NC-4
ALE
PSEN
EXT V
EMERGENCY
P25
DIS-CHARGE
STB3
XTAL2
XTAL1
Vss
NC-3
POWER
EJECT
TALLY
BAT DET
AE SEG
D614 MA141A
C607 0.01μF
C609 22PF
C608 22PF
X603 12MHZ
C612 10μF/16V
U610
PCF8583
RAM&TIMER
OCS1
OCS0
A0
VSS
VDD
INT
SCL
SDA
C606 15PF
X602
C616 0.01μF
R605 4K7
R673 47K
R674 47K
D617 MA141WK
Q618 2SC1819
R6A7 680
D603 MA141WK
R6B1 270
R6A8 4K7
R6A9 2K2
R680 2K2
Q619 2SC213
D609 MA141A
R684 47K
Q613
C619 1μF/15
C620 1μF
Q614 2SB956
2/2 U611
R689 820
R690 33K (F)
R691 22K (F)
C621 100μ/6.3V
C622 0.01μF
VCM 5V
T601
VCM 9V
Q617 2SB970
R693 4K7
R696 1K
D612 MA141A
R692 47K
Q616 UN5213
C623 1μF/50V
C624 1μF
D616 MA141A
R697 4K7
1/2 U611 BA10358
R699 36K (F)
C625 47μF/16
R698 10K (F)
C626 0.01μF
R682 4K7
R695 4K7
Q615 UN5213
R694 1K
C627 10μF/16V
D613 RD5.1M
R687 100K
P601 20K
VCM 5V
R688 56K
1/2 U613 BA10358
2/2 U613
R677 10K
R678 10K
R679 10K
D605 MA141A
D606 MA141A
D607 MA141A
R676 10K
R606 22K
R607 22K
+9V
SW+5V
L602 100μH
C618 4.7μF/16V
C631 150PF
U604
μPD6145G
CS
CLK
STB
DATA
NC1
Vdd
CKout
OSCout
OSCin
Vss
HOLD
H SYNC
V SYNC
TEST
NC2
VBLK
VB
VG
VR
Vmon
C614 47μF/16
L601 33μH
C604 47PF
V601 47PF
CHARACTOR POSITION
R682 22K
R663 22K
R683 4K7
N608
CAM GND
CAM +5V
CAM +9V
CAM +15V
CAM -8V
UNSW +5V
SW +5V
SW +12V
GND
FROM/TO SSPA PCB N903
N607
CAM GND
CAM GND
CAM -8V
CAM +15V
CAM +9V
CAM +5V
CAM GND
FROM/TO PROCESS PCB N204
N613
CLK
DATA
STB1
GND
FROM/TO AWB PCB N701
N614
UEX
IRIS OFFSET
BLC
AESEG
SW +12V
GND
FROM/TO AWB PCB N401
N612
AF(M/A)
ARE(L/S)
IARE
GND
FROM/TO AF PCB P03
N609
FLP
EFFP
TPCON
REC CHARACTER
V-SYNC
H-SYNC
EVF CHARACTER
GND
C. SYN
FROM/TO VIDEO PCB N805
N606
AUDIO SEL
EDIT
EXT V
TALLY
FOCUS WINDOW
CLAMP
FROM/TO VIDEO PCB N806

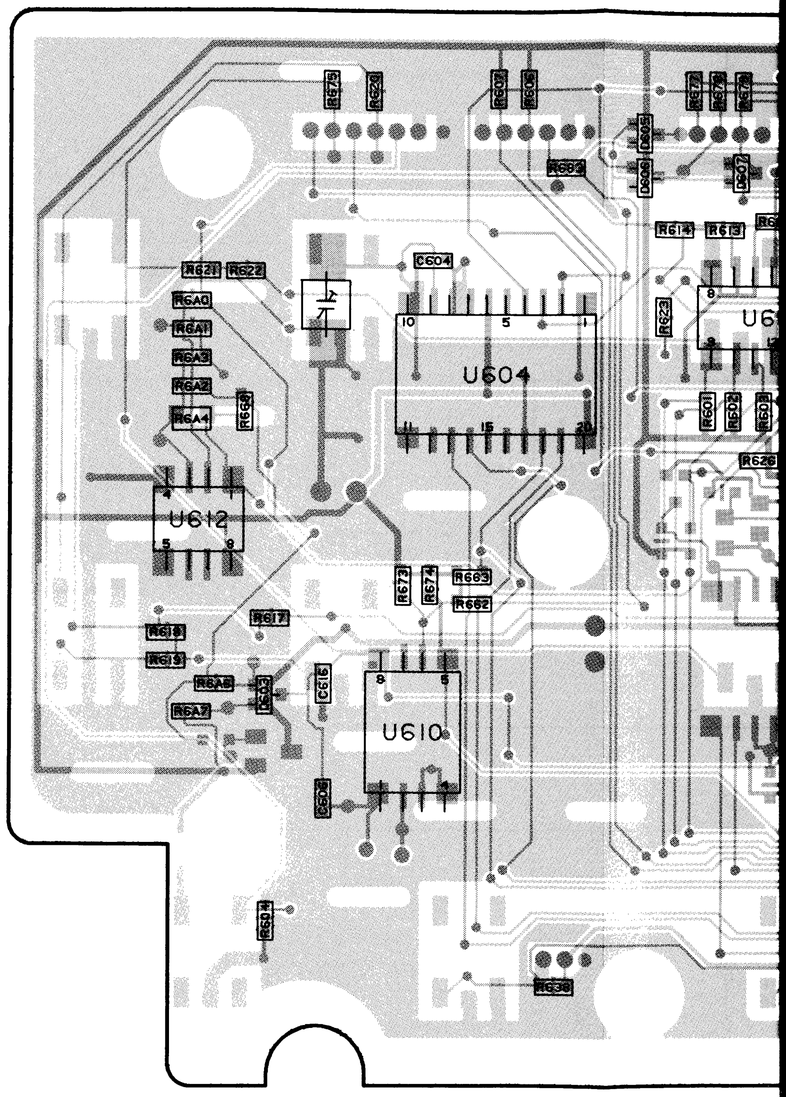
INDICATED VOLTAGES ARE MEASURED
IN RECORDING MODE.

IND SCHEMATIC DIAGRAM
003G030508

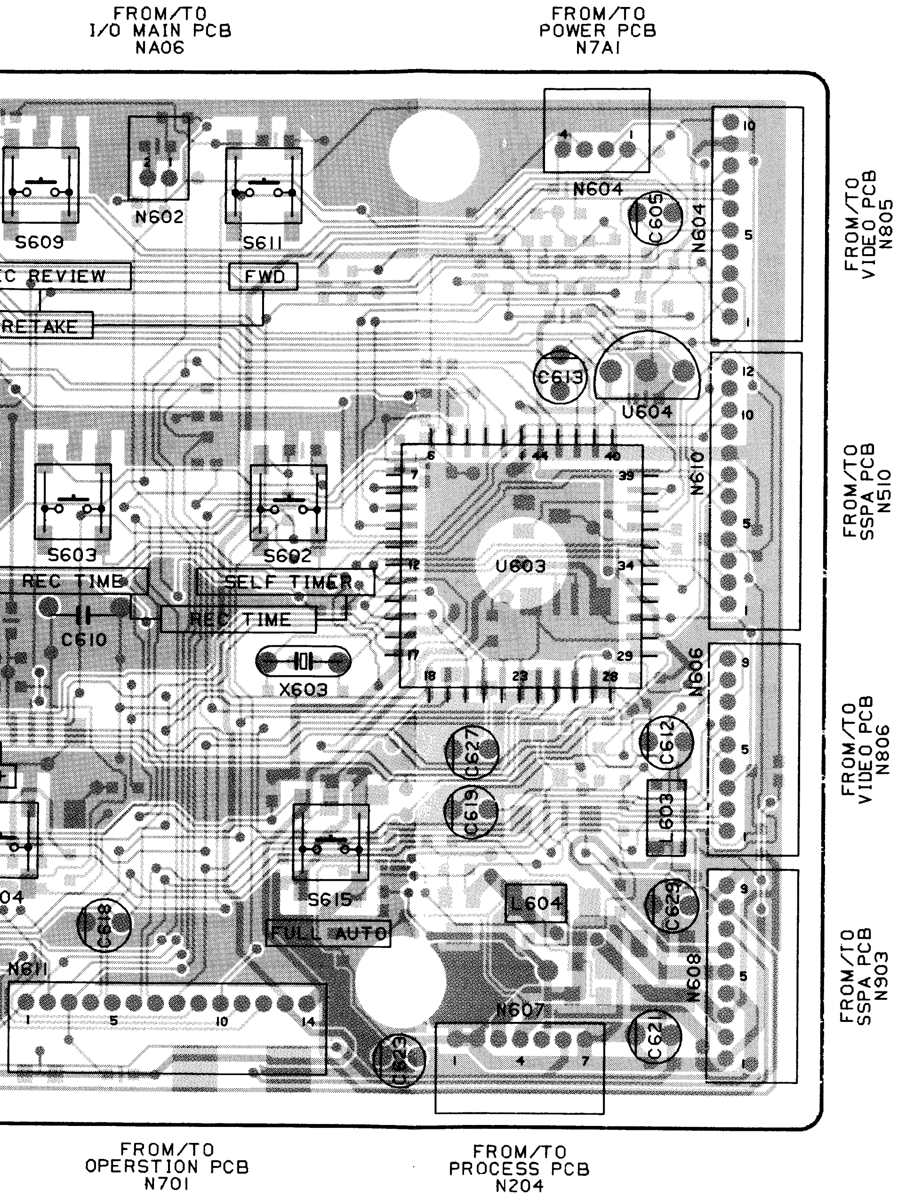
10-8. IND PC BOARD

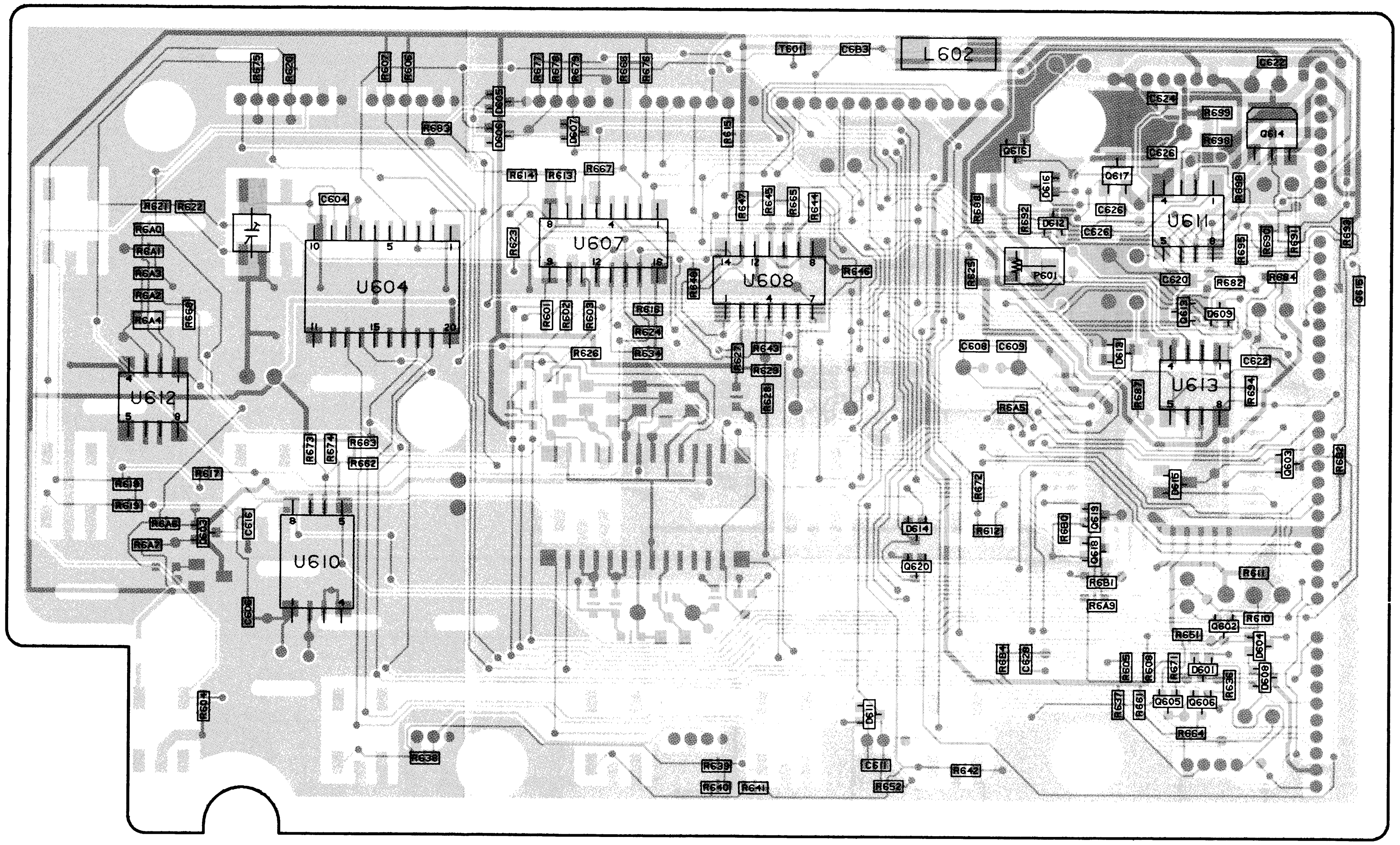

FROM/TO TRIGGER PCB N7B1
FROM/TO
FROM/TO I/O MAIN PCB NA06
FROM/TO POWER PCB N7A1
FROM/TO VIDEO PCB N805
FROM/TO SSPA PCB N510
FROM/TO VIDEO PCB N806
FROM/TO SSPA PCB N903
S601
BLS
X602
S608
FADER
N601
S610
REV
N603
S609
REC REVIEW
RETAKE
N602
S611
FWD
N604
C605
C613
U604
S607
AUTO/MAN.
S606
ZONE SELECT PUSH AUTO
FOCUS
C614
S612
DATE/TIME
S603
REC TIME
C610
S602
SELF TIMER
REC TIME
U603
X603
N610
N606
IRIS
-
+
C627
C619
C612
L603
S605
W.BALANCE
S613
SHUTTER
L601
S614
S604
C618
S615
FULL AUTO
L604
C629
N605
N612
N613
N614
N611
N607
C623
C621
N608
FROM/TO LITH BATT PCB N701
FROM/TO AF PCB P03
FROM/TO AWB PCB N701
FROM/TO AWB PCB N401
FROM/TO OPERSTION PCB N701
FROM/TO PROCESS PCB N204

IND PCB WB002G2204 (A SIDE)


R675
R620
R607
R606
R614
R613
R621
R622
R6A0
R6A1
R6A3
R6A2
R6A4
C604
U604
R623
U612
R673
R674
R683
R682
R617
R618
R619
R6A6
R6A7
C616
U610
R634

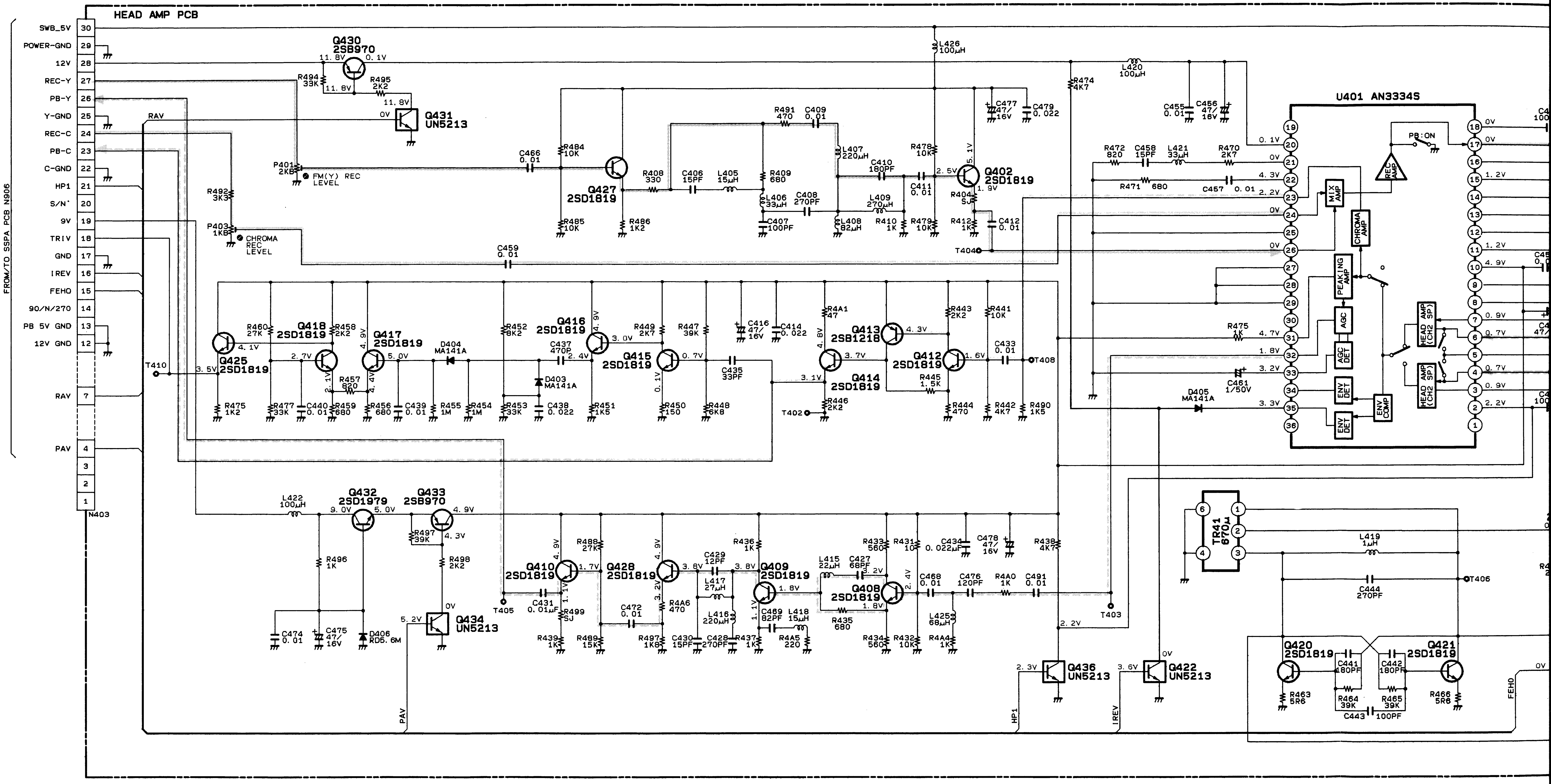
IND PCB WB002G2204 (SIDE B)


FROM/TO
I/O MAIN PCB
NA06
FROM/TO
POWER PCB
N7A1
FROM/TO
VIDEO PCB
N805
FROM/TO
SSPA PCB
N510
FROM/TO
VIDEO PCB
N806
FROM/TO
SSPA PCB
N903
FROM/TO
OPERSTION PCB
N701
FROM/TO
PROCESS PCB
N204
S609
N602
S611
N604
C605
C REVIEW
FWD
RETAKE
C613
U604
U603
N610
S603
S602
REC TIME
SELF TIMER
REC TIME
C610
X603
N606
C627
C619
C612
L603
S615
FULL AUTO
L604
C629
C618
N611
N607
N608
C621
C623


T601
C683
L602
U604
U607
U608
U611
U612
U613
U610
C604
P601
Q614
Q617
C626
C620
C609
C622
C608
Q620
D614
D611
C611
R642
R652
R638
R639
R640
R641

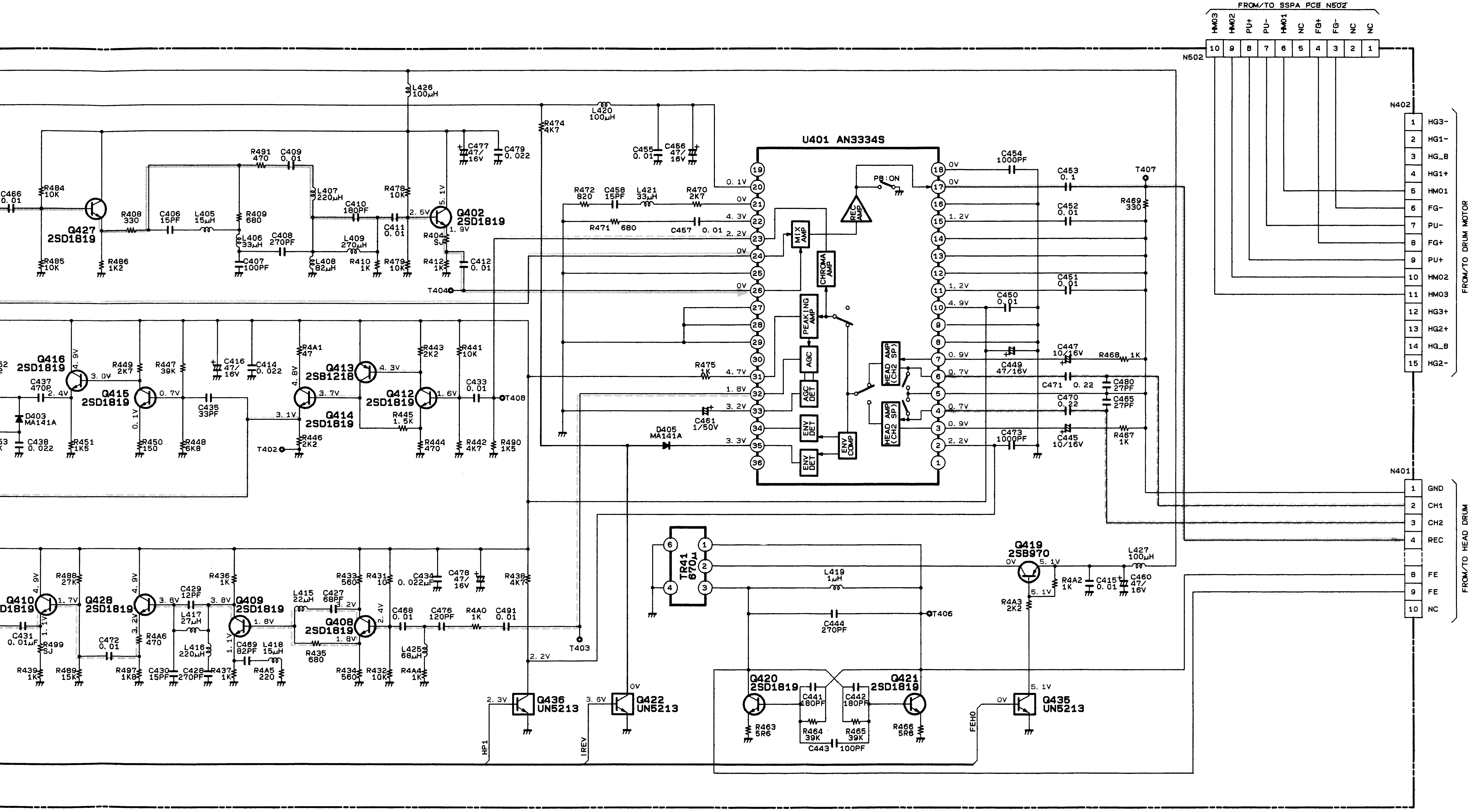
IND PCB WB002G2204 (SIDE B)

10-9. HEAD AMP SCHEMATIC DIAGRAM


HEAD AMP PCB
FROM/TO SSPA PCB N906
SWB_5V 30
POWER-GND 29
12V 28
REC-Y 27
PB-Y 26
Y-GND 25
REC-C 24
PB-C 23
C-GND 22
HP1 21
S/N' 20
9V 19
TRIV 18
GND 17
IREV 16
FEHO 15
90/N/270 14
PB 5V GND 13
12V GND 12
RAV 7
PAV 4
3
2
1
N403
RAV
T410
Q430 2SB970
11.8V
0.1V
R494 33K
R495 2K2
Q431 UN5213
P401 2K2
FM(Y) REC LEVEL
R492 3K3
P403 1K8
CHROMA REC LEVEL
C466 0.01
R484 10K
Q427 2SD1819
R485 10K
R486 1K2
R408 330
C406 15PF
L405 15µH
R491 470
C409 0.01
R409 680
L406 33µH
C408 270PF
C407 100PF
L407 220µH
C410 180PF
L409 270µH
L408 82µH
R410 1K
C411 0.01
R478 10K
R479 10K
L426 100µH
Q402 2SD1819
R404 SJ
R412 1K
C412 0.01
C477 47/16V
C479 0.022
T404
C459 0.01
Q425 2SD1819
R460 27K
Q418 2SD1819
R458 2K2
Q417 2SD1819
R457 820
D404 MA141A
R475 1K2
R477 33K
C440 0.01
R459 680
R456 680
C439 0.01
R455 1M
R454 1M
R452 8K2
Q416 2SD1819
C437 470P
D403 MA141A
R453 33K
C438 0.022
R451 1K5
R449 2K7
Q415 2SD1819
R447 39K
R450 150
C435 33PF
R448 6K8
C416 47/16V
C414 0.022
R4A1 47
Q413 2SB1218
Q414 2SD1819
R446 2K2
T402
Q412 2SD1819
R445 1.5K
R443 2K2
R441 10K
R444 470
C433 0.01
R442 4K7
R490 1K5
T408
L422 100µH
Q432 2SD1979
Q433 2SB970
R497 39K
R496 1K
R498 2K2
C474 0.01
C475 47/16V
D406 RD5.6M
Q434 UN5213
PAV
T405
Q410 2SD1819
C431 0.01µF
R499 SJ
R439 1K
R488 27K
R489 15K
Q428 2SD1819
C472 0.01
R4A6 470
R497 1K8
C429 12PF
L417 27µH
L416 220µH
C430 15PF
C428 270PF
R437 1K
R436 1K
Q409 2SD1819
C469 82PF
L418 15µH
R4A5 220
L415 22µH
C427 68PF
Q408 2SD1819
R435 680
R433 560
R434 560
R431 10
R432 10K
C434 0.022µF
C478 47/16V
C468 0.01
C476 120PF
R4A0 1K
C491 0.01
L425 68µH
R4A4 1K
R438 4K7
T403
Q436 UN5213
Q422 UN5213
HP1
IREV
R474 4K7
L420 100µH
C455 0.01
C456 47/16V
U401 AN3334S
R472 820
C458 15PF
L421 33µH
R470 2K7
R471 680
C457 0.01
R475 1K
C461 1/50V
D405 MA141A
PB:ON
REC AMP
MIX AMP
CHROMA AMP
PEAKING AMP
AGC
AGC DET
ENV DET
ENV COMP
HEAD AMP (CH2 SP)
TR41 670µ
L419 1µH
C444 270PF
T406
Q420 2SD1819
Q421 2SD1819
C441 180PF
C442 180PF
R463 5R6
R464 39K
R465 39K
C443 100PF
R466 5R6
FEHO

NOTE: UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF

INDICATED VOLTAGES ARE MEASURED
IN PLAYBACK MODE.


FROM/TO SSPA PCB N502
N502
HM03
HM02
PU+
PU-
HM01
NC
FG+
FG-
NC
NC
10
9
8
7
6
5
4
3
2
1
N402
HG3-
HG1-
HG_B
HG1+
HM01
FG-
PU-
FG+
PU+
HM02
HM03
HG3+
HG2+
HG_B
HG2-
FROM/TO DRUM MOTOR
N401
GND
CH1
CH2
REC
FE
FE
NC
FROM/TO HEAD DRUM
U401 AN3334S
PB:ON
REC AMP
MIX AMP
CHROMA AMP
PEAKING AMP
AGC
AGC DET
ENV DET
ENV DET
ENV COMP
HEAD AMP (CH2 SP)
HEAD AMP (CH2 SP)
L426 100μH
L420 100μH
R474 4K7
C455 0.01
C456 47/16V
C477 47/16V
C479 0.022
C466 0.01
R484 10K
R485 10K
Q427 2SD1819
R408 330
R486 1K2
C406 15PF
L405 15μH
R491 470
C409 0.01
R409 680
L406 33μH
C407 100PF
C408 270PF
L407 220μH
L408 82μH
C410 180PF
L409 270μH
R410 1K
C411 0.01
R478 10K
R479 10K
Q402 2SD1819
R404 SJ
R412 1K
C412 0.01
T404
R472 820
C458 15PF
L421 33μH
R470 2K7
R471 680
C457 0.01
C454 1000PF
C453 0.1
T407
R469 330
C452 0.01
C451 0.01
C450 0.01
C447 10/16V
R468 1K
C449 47/16V
C471 0.22
C480 27PF
C470 0.22
C465 27PF
C445 10/16V
R467 1K
C473 1000PF
R475 1K
C461 1/50V
D405 MA141A
Q416 2SD1819
Q415 2SD1819
R449 2K7
R447 39K
C416 47/16V
C414 0.022
C437 470P
D403 MA141A
C438 0.022
R451 1K5
R450 150
C435 33PF
R448 6K8
R4A1 47
Q413 2SB1218
Q414 2SD1819
Q412 2SD1819
R443 2K2
R441 10K
R445 1.5K
R446 2K2
T402
R444 470
R442 4K7
C433 0.01
R490 1K5
T408
Q410 2SD1819
Q428 2SD1819
R488 27K
C429 12PF
L417 27μH
L416 220μH
R436 1K
Q409 2SD1819
C431 0.01μF
R499 SJ
R439 1K
R489 15K
C472 0.01
R497 1K8
R4A6 470
C430 15PF
C428 270PF
R437 1K
C469 82PF
L418 15μH
R4A5 220
L415 22μH
C427 68PF
R433 560
R431 10
C434 0.022μF
C478 47/16V
R438 4K7
Q408 2SD1819
R435 680
R434 560
R432 10K
C468 0.01
C476 120PF
R4A0 1K
C491 0.01
L425 68μH
R4A4 1K
T403
Q436 UN5213
Q422 UN5213
HP1
IREV
TR41 670μ
L419 1μH
C444 270PF
T406
Q420 2SD1819
Q421 2SD1819
C441 180PF
C442 180PF
R463 5R6
R464 39K
R465 39K
R466 5R6
C443 100PF
Q419 2SB970
L427 100μH
R4A2 1K
C415 0.01
C460 47/16V
R4A3 2K2
Q435 UN5213
FEHO

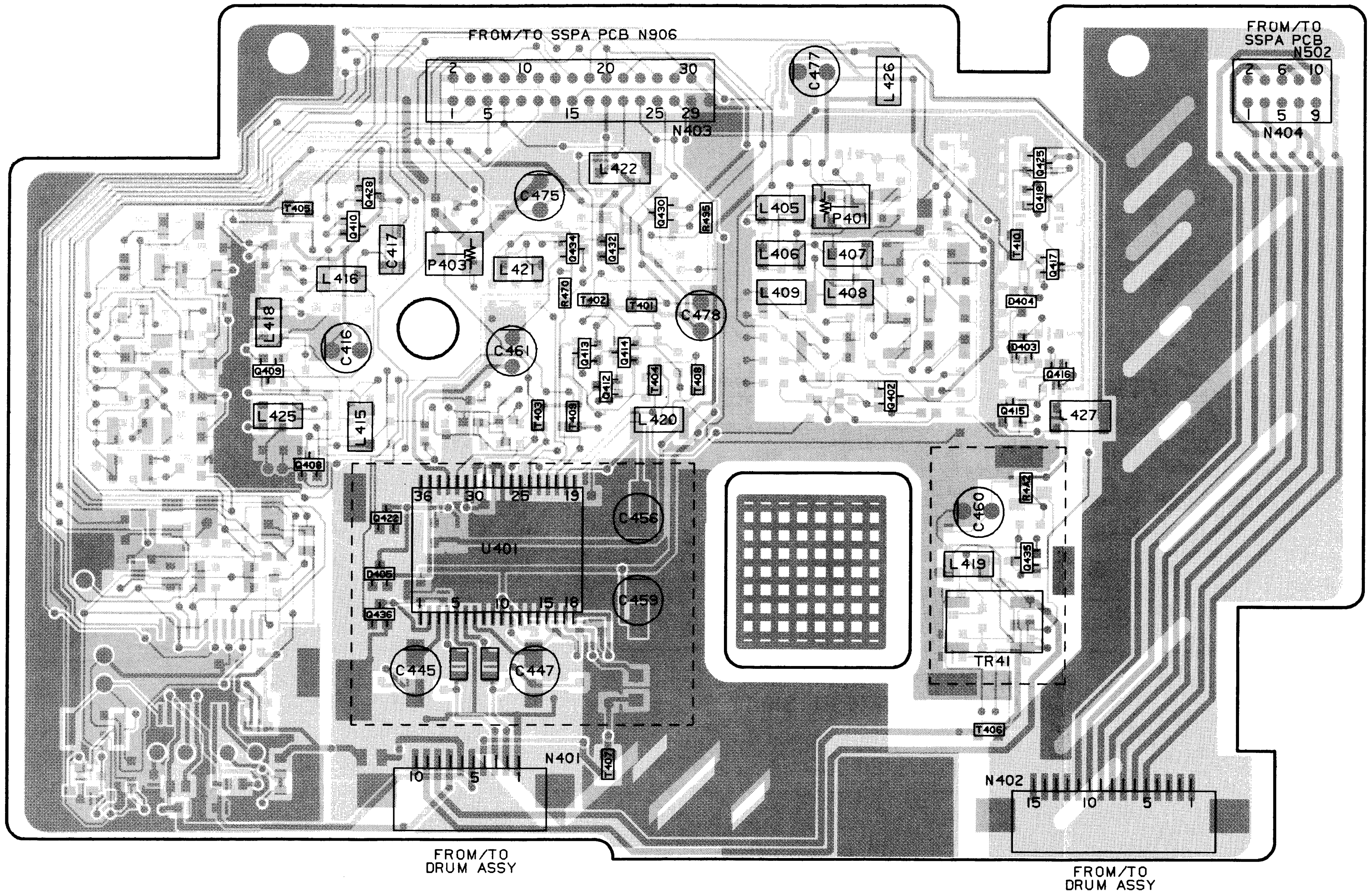
NOTE: UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF

INDICATED VOLTAGES ARE MEASURED
IN PLAYBACK MODE.

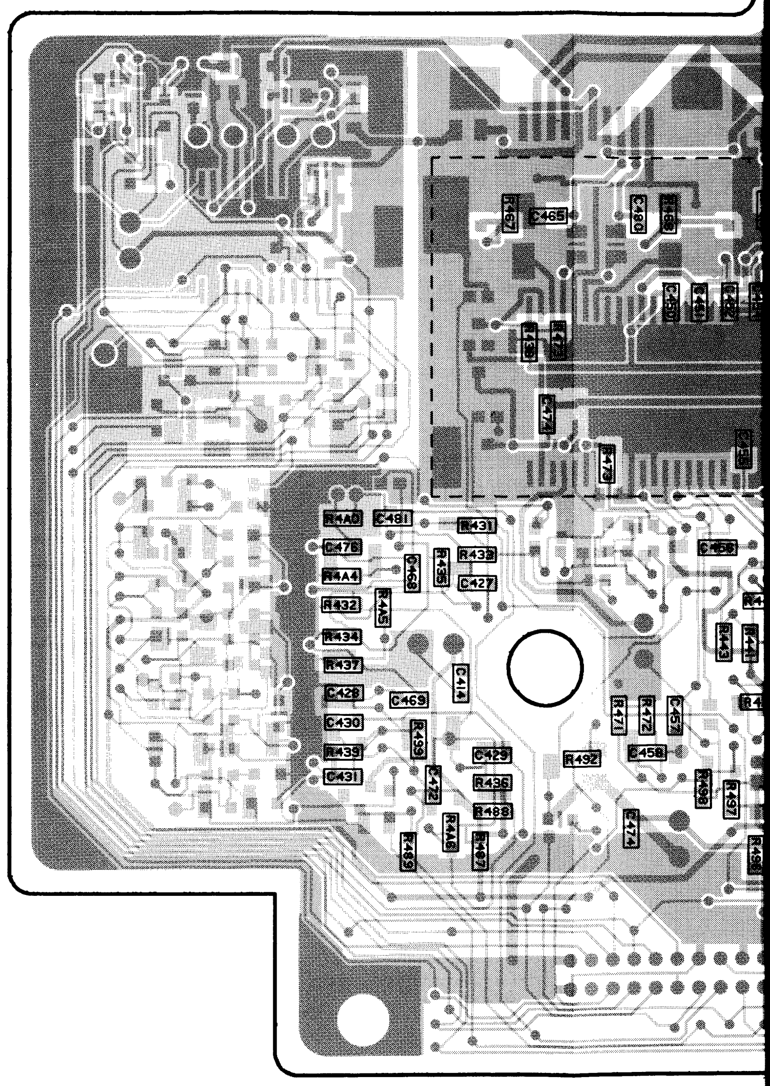
┈┈┈	: REC Y SIGNAL LINE
┈┈┈	: REC C SIGNAL LINE
┈┈┈	: PB Y SIGNAL LINE
┈┈┈	: PB C SIGNAL LINE

HEAD AMP
SCHEMATIC DIAGRAM

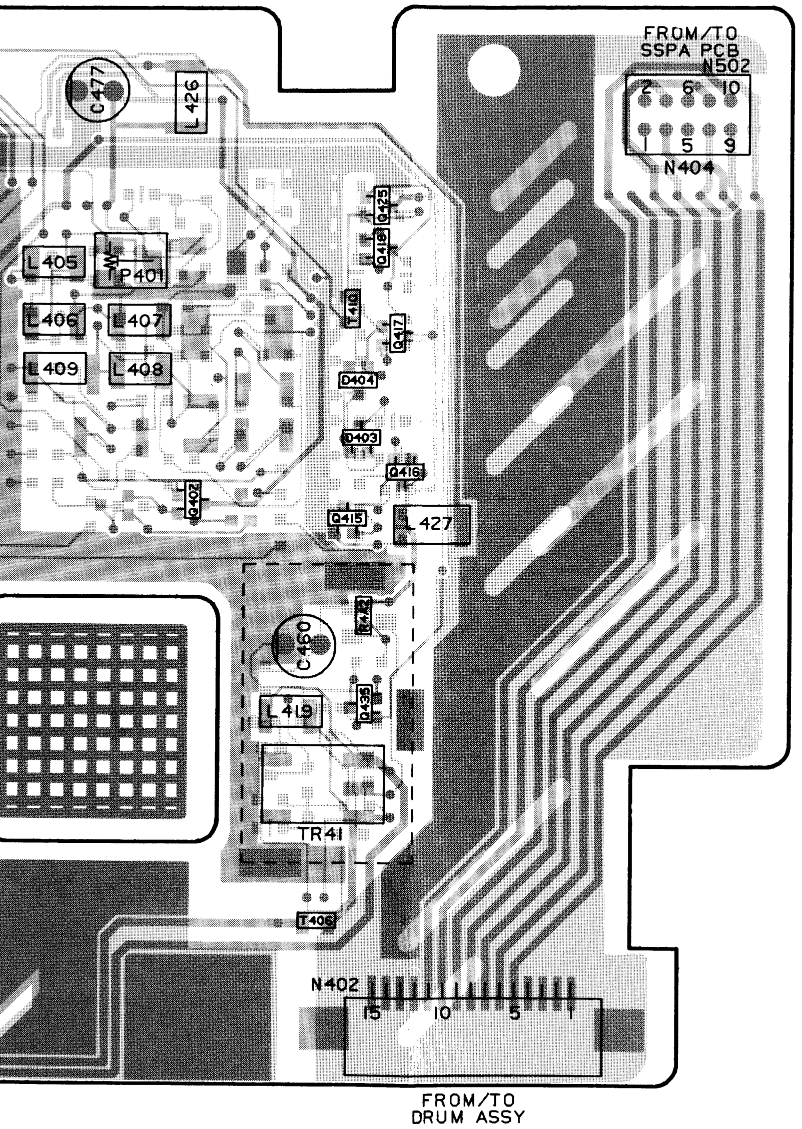
10-10. HEAD AMP PC BOARD

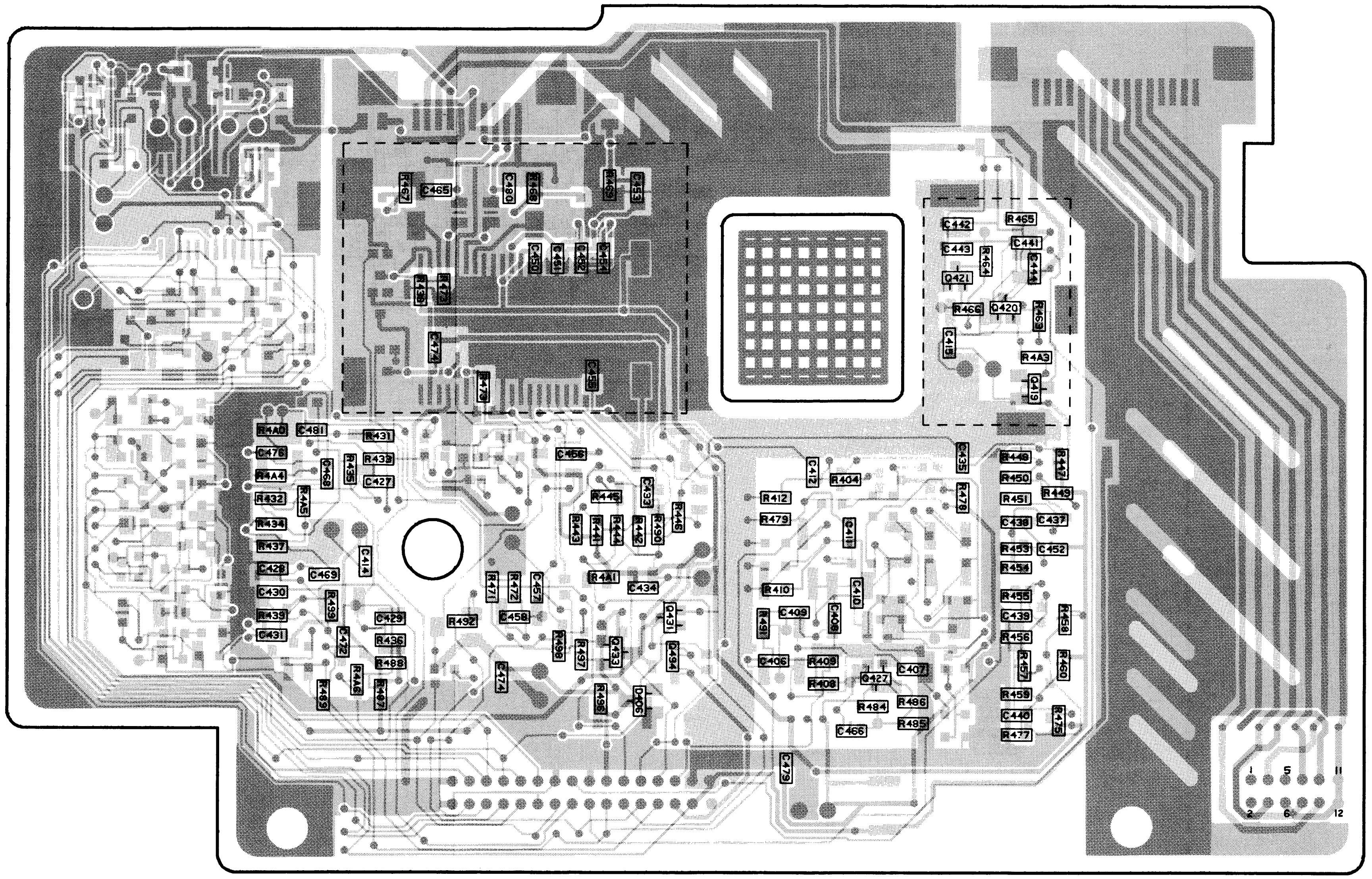

FROM/TO SSPA PCB N906
N403
FROM/TO SSPA PCB N502
N404
C477
L426
L422
C475
P403
L421
L417
L416
L418
C416
Q409
L425
L415
C461
C478
L405
P401
L406
L407
L409
L408
L427
L420
U401
C456
C459
C445
C447
C460
L419
TR41
N401
N402
FROM/TO DRUM ASSY
FROM/TO DRUM ASSY

HEAD AMP PCB WB002G2224(A SIDE)



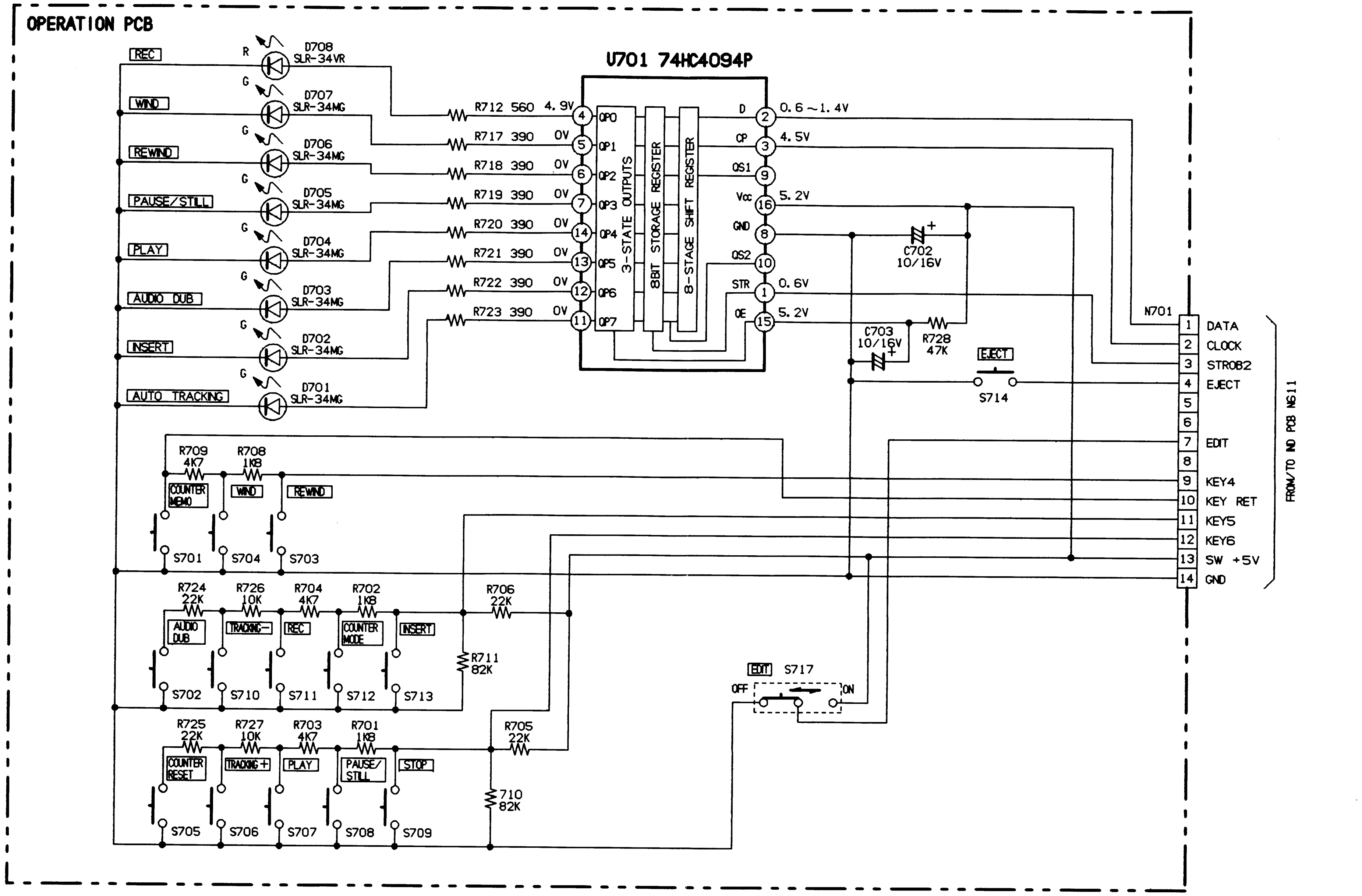
HEAD AMP PCB WB002


FROM/TO
SSPA PCB
N502
2 6 10
1 5 9
N404
C477
L426
L405
P401
L406
L407
L409
L408
Q425
Q418
T410
Q417
D404
D403
Q416
Q402
Q415
L427
R442
C460
L419
Q435
TR41
T406
N402
15 10 5 1
FROM/TO
DRUM ASSY


C465
R440
C481
R431
C476
R438
C427
R432
R434
R437
C428
C430
R439
C431
C469
C414
C429
R436
R488
R492
C458
C456
C433
R441
C434
C412
R404
R479
R412
R410
C409
C406
R408
Q427
C407
R486
R485
C466
C479
C442
C443
R465
C441
Q421
R466
Q420
C415
R4A3
Q419
C435
R448
R450
R451
C438
C437
R453
C452
R454
R455
C439
R456
R459
C440
R477
R449
1 5 11
2 6 12

HEAD AMP PCB WB002G2224 (B SIDE)

10-11. OPERATION SCHEMATIC DIAGRAM

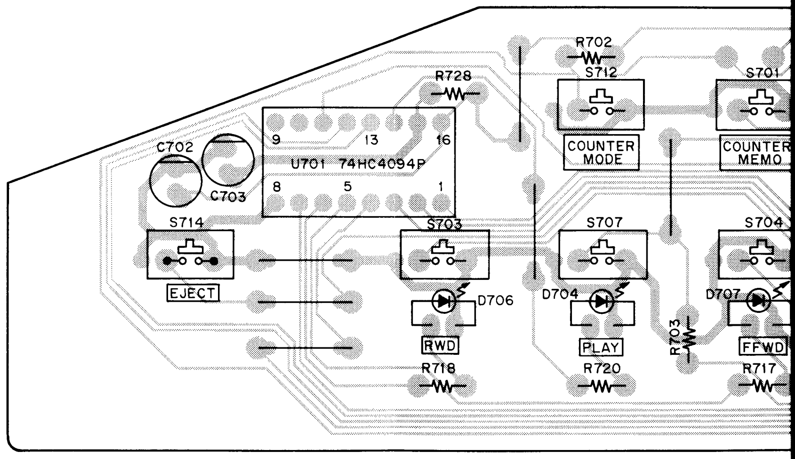

OPERATION PCB
U701 74HC4094P
REC
WIND
REWIND
PAUSE/STILL
PLAY
AUDIO DUB
INSERT
AUTO TRACKING
R
G
D708 SLR-34VR
D707 SLR-34MG
D706 SLR-34MG
D705 SLR-34MG
D704 SLR-34MG
D703 SLR-34MG
D702 SLR-34MG
D701 SLR-34MG
R712 560
R717 390
R718 390
R719 390
R720 390
R721 390
R722 390
R723 390
4.9V
0V
QP0
QP1
QP2
QP3
QP4
QP5
QP6
QP7
3-STATE OUTPUTS
8BIT STORAGE REGISTER
8-STAGE SHIFT REGISTER
D
CP
QS1
Vcc
GND
QS2
STR
OE
0.6~1.4V
4.5V
5.2V
0.6V
5.2V
C702 10/16V
C703 10/16V
R728 47K
EJECT
S714
N701
1 DATA
2 CLOCK
3 STROB2
4 EJECT
5
6
7 EDIT
8
9 KEY4
10 KEY RET
11 KEY5
12 KEY6
13 SW +5V
14 GND
FROM/TO NO PCB NS11
R709 4K7
R708 1K8
COUNTER MEMO
WIND
REWIND
S701
S704
S703
R724 22K
R726 10K
R704 4K7
R702 1K8
R706 22K
AUDIO DUB
TRACKING−
REC
COUNTER MODE
INSERT
R711 82K
S702
S710
S711
S712
S713
EDIT S717
OFF
ON
R725 22K
R727 10K
R703 4K7
R701 1K8
R705 22K
COUNTER RESET
TRACKING+
PLAY
PAUSE/STILL
STOP
710 82K
S705
S706
S707
S708
S709

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS, 1/16W(J)
ALL CAPCITORS IN µF.

INDICAED VOLTAGES ARE MEASURED
IN REC MODE

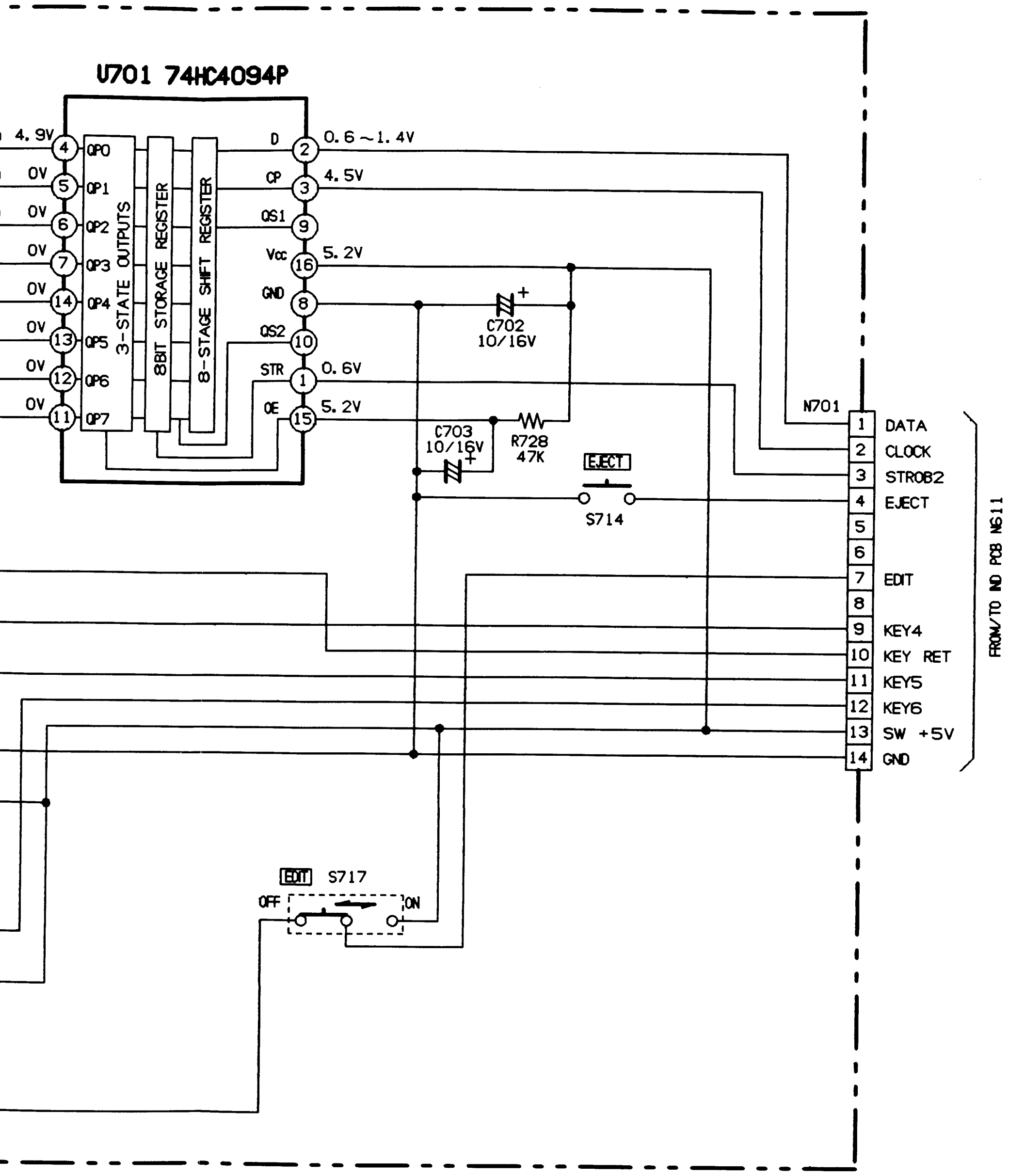
OPERATION PCB
SCHEMATIC DIAGRAM

10-12. OPERATION PC BOARD


R702
S712
S701
R728
C702
C703
9
13
16
U701 74HC4094P
8
5
1
COUNTER MODE
COUNTER MEMO
S714
S703
S707
S704
EJECT
D706
D704
D707
RWD
PLAY
FFWD
R703
R718
R720
R717

OPERATION PCB WB002G30
(VIEW FROM PATTERN SIDE

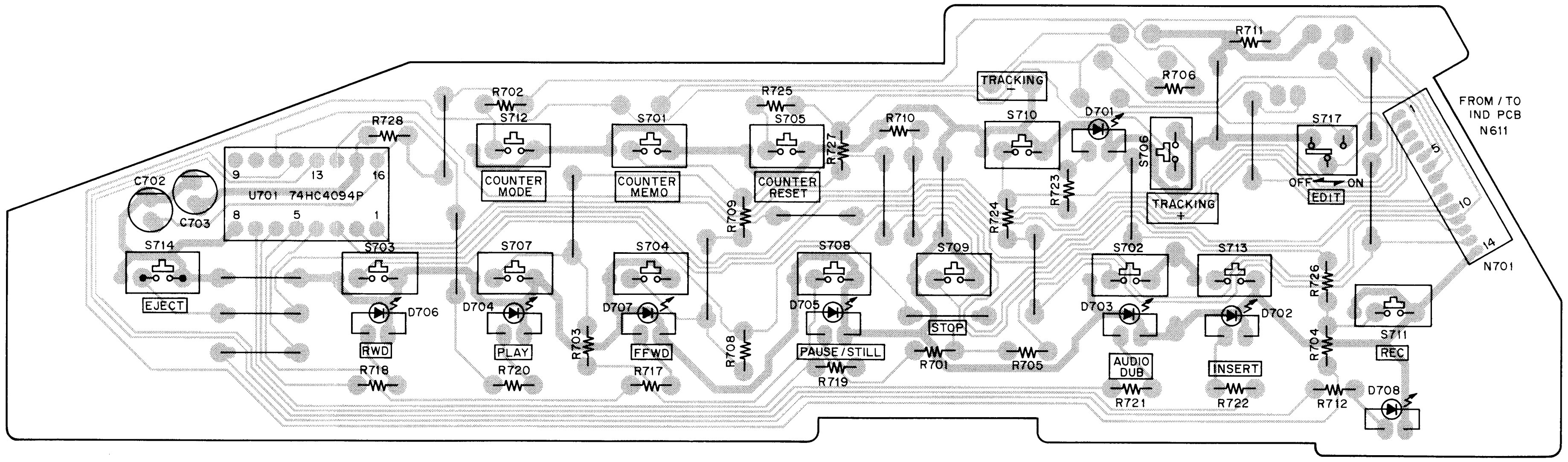
10-12. OPERATION PC BOARD


U701 74HC4094P
4.9V
0V
QP0
QP1
QP2
QP3
QP4
QP5
QP6
QP7
3-STATE OUTPUTS
8BIT STORAGE REGISTER
8-STAGE SHIFT REGISTER
D
CP
QS1
Vcc
GND
QS2
STR
OE
0.6～1.4V
4.5V
5.2V
0.6V
5.2V
C702
10/16V
C703
10/16V
R728
47K
EJECT
S714
N701
1 DATA
2 CLOCK
3 STROB2
4 EJECT
5
6
7 EDIT
8
9 KEY4
10 KEY RET
11 KEY5
12 KEY6
13 SW +5V
14 GND
FROM/TO IND PCB N611
EDIT S717
OFF
ON

…FIED
…, 1/16W(J)

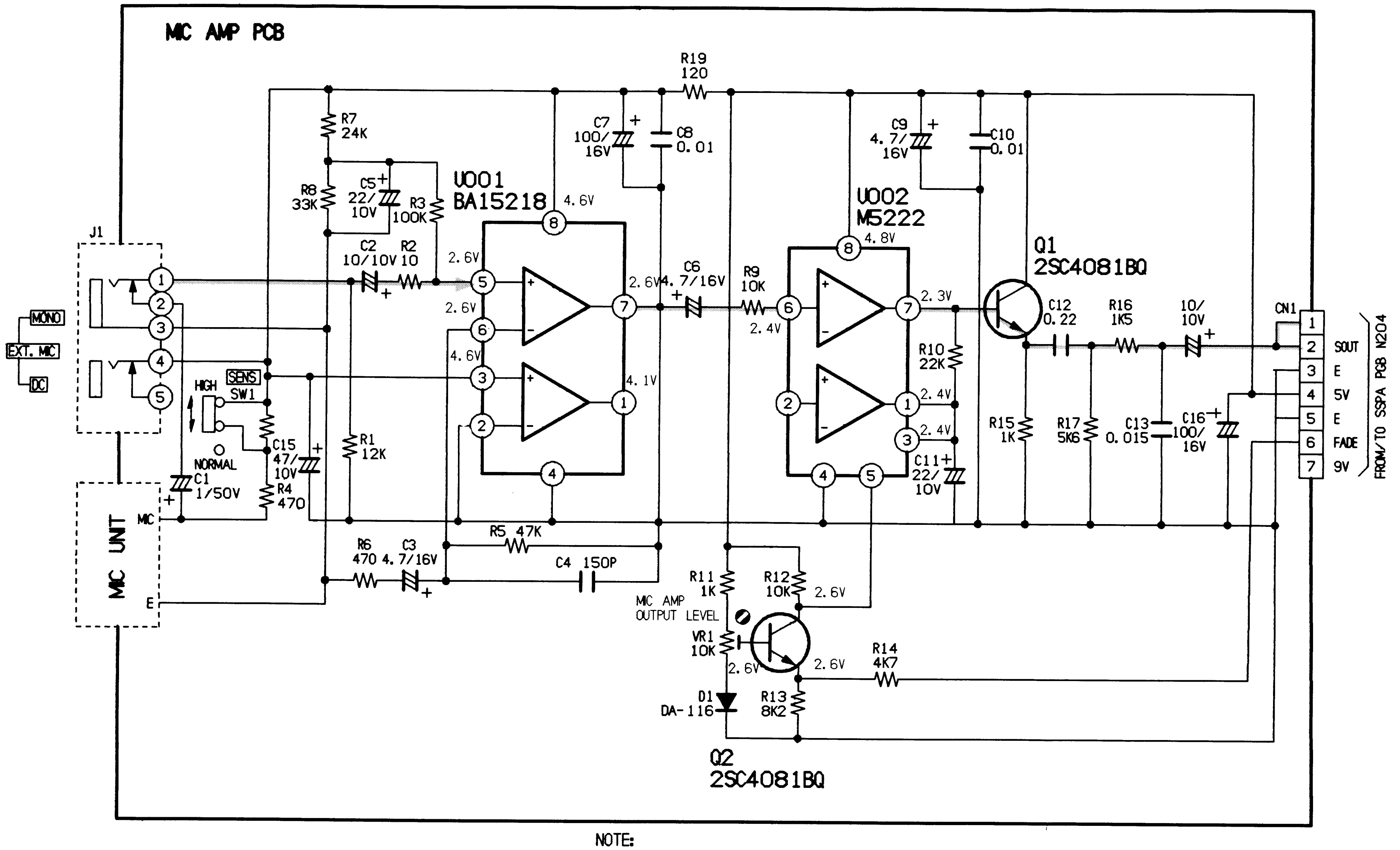
INDICAED VOLTAGES ARE MEASURED
IN REC MODE

OPERATION PCB
SCHEMATIC DIAGRAM


C702
C703
U701 74HC4094P
9
13
16
8
5
1
S714
EJECT
R728
S703
RWD
D706
R718
R702
S712
COUNTER MODE
S707
D704
PLAY
R720
S701
COUNTER MEMO
S704
D707
FFWD
R717
R703
R725
S705
COUNTER RESET
R727
R709
R708
S708
D705
PAUSE/STILL
R719
R710
S709
STOP
R701
R705
TRACKING
−
S710
R724
R723
D701
S706
TRACKING
+
R706
R711
S702
D703
AUDIO DUB
R721
S713
D702
INSERT
R722
S717
OFF
ON
EDIT
R726
R704
S711
REC
R712
D708
FROM / TO
IND PCB
N611
1
5
10
14
N701

OPERATION PCB WB002G30E4
(VIEW FROM PATTERN SIDE)

10-13. MIC AMP SCHEMATIC DIAGRAM


MIC AMP PCB
J1
MONO
EXT. MIC
DC
R7 24K
R8 33K
C5 22/10V
R3 100K
U001 BA15218
4.6V
C7 100/16V
C8 0.01
R19 120
C2 10/10V
R2 10
2.6V
2.6V
4.6V
4.1V
C6 4.7/16V
R9 10K
2.4V
U002 M5222
4.8V
C9 4.7/16V
C10 0.01
Q1 2SC4081BQ
2.3V
C12 0.22
R16 1K5
10/10V
R10 22K
2.4V
2.4V
C11 22/10V
R15 1K
R17 5K6
C13 0.015
C16 100/16V
CN1
SOUT
E
5V
E
FADE
9V
FROM/TO SSPA PCB N204
HIGH
SENS
SW1
NORMAL
C1 1/50V
C15 47/10V
R4 470
R1 12K
MIC UNIT
MIC
E
R6 470
C3 4.7/16V
R5 47K
C4 150P
R11 1K
R12 10K
2.6V
MIC AMP OUTPUT LEVEL
VR1 10K
2.6V
2.6V
R14 4K7
D1 DA-116
R13 8K2
Q2 2SC4081BQ

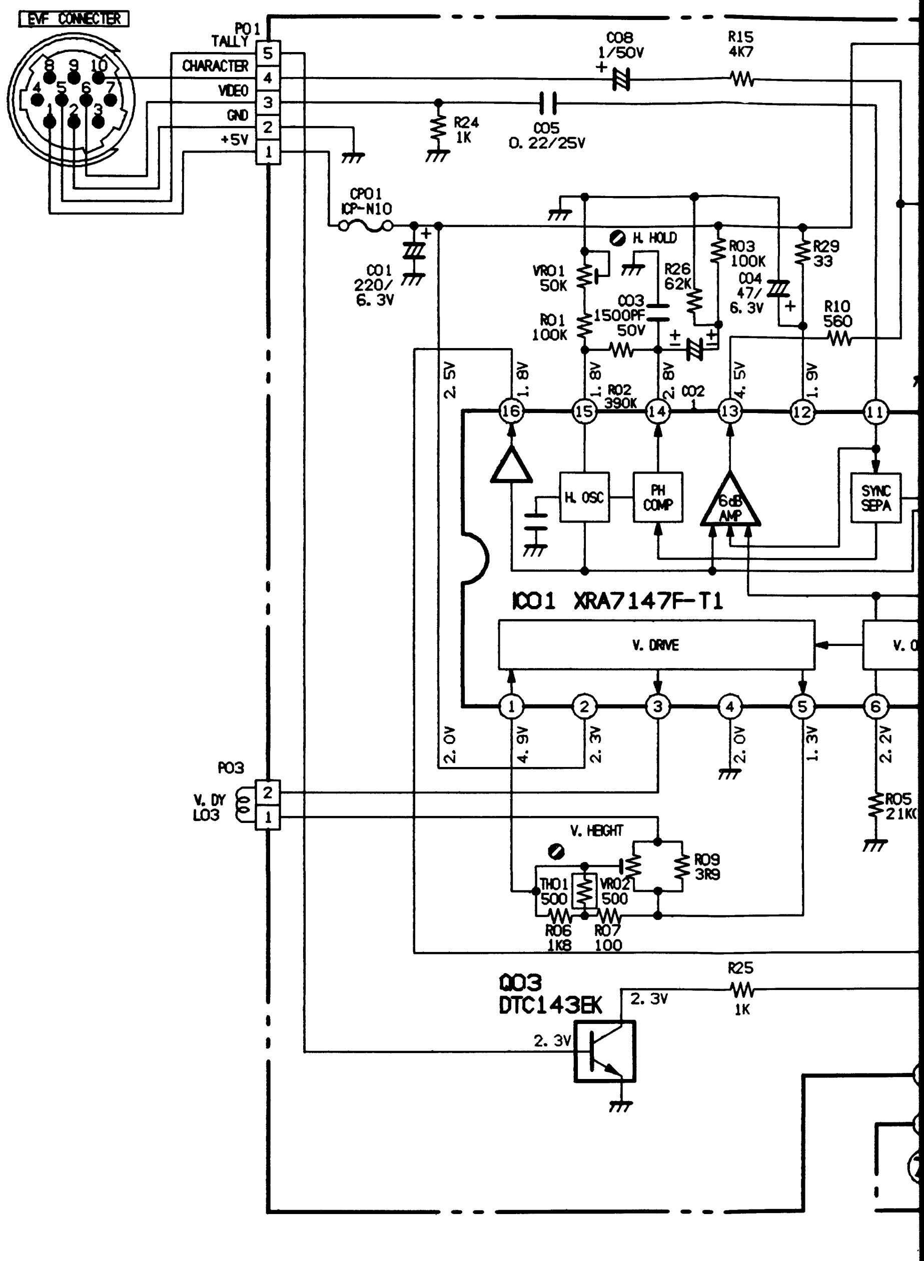
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN UF

INDICATED VOLTAGES ARE
MEASURED IN REC MODE.

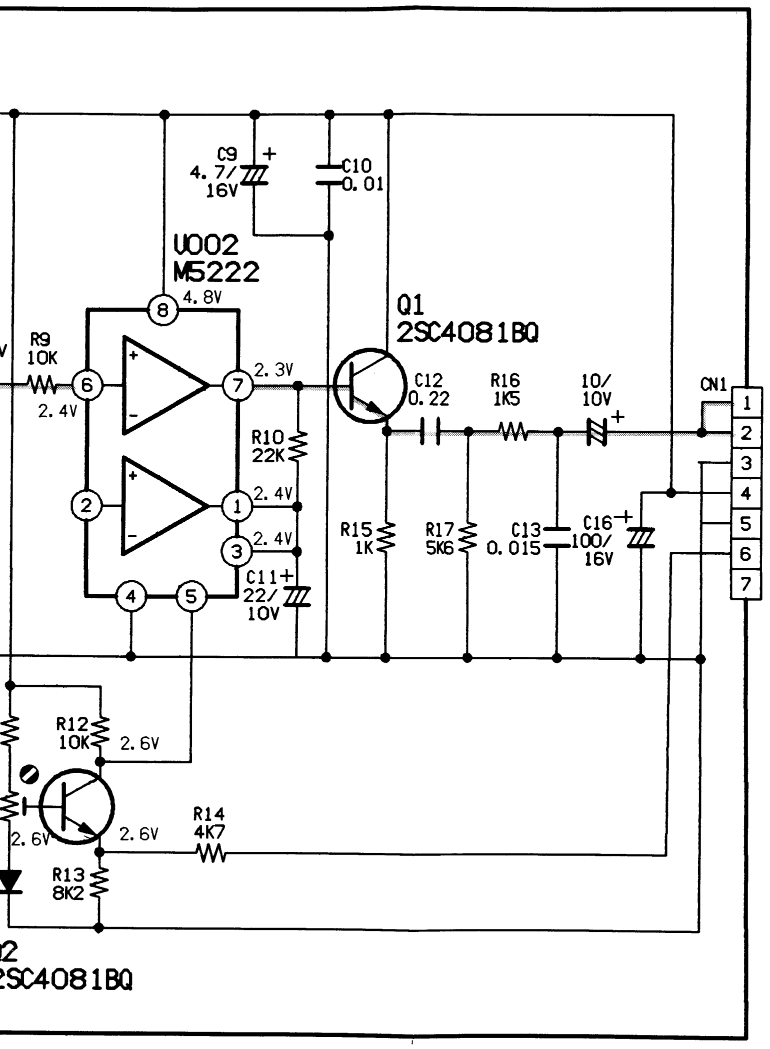
——— : SIGNAL LINE

**MIC AMP
SCHEMATIC DIAGRAM**

10-14. EVF SCHEMATIC DIAGRAM


EVF CONNECTER
P01
TALLY
CHARACTER
VIDEO
GND
+5V
C08 1/50V
R15 4K7
R24 1K
C05 0.22/25V
CP01 ICP-N10
C01 220/6.3V
H. HOLD
VR01 50K
R26 62K
R03 100K
C04 47/6.3V
R29 33
R10 560
R01 100K
C03 1500PF 50V
R02 390K
C02
2.5V
1.8V
1.6V
1.8V
4.5V
1.9V
H. OSC
PH COMP
6dB AMP
SYNC SEPA
IC01 XRA7147F-T1
V. DRIVE
2.0V
4.9V
2.3V
2.0V
1.3V
2.2V
P03
V. DY
L03
V. HEIGHT
TH01 500
VR02 500
R09 3R9
R06 1K8
R07 100
R05 21K
Q03 DTC143EK
2.3V
2.3V
R25 1K

10-14. EVF SCHEMATIC DIAGRAM

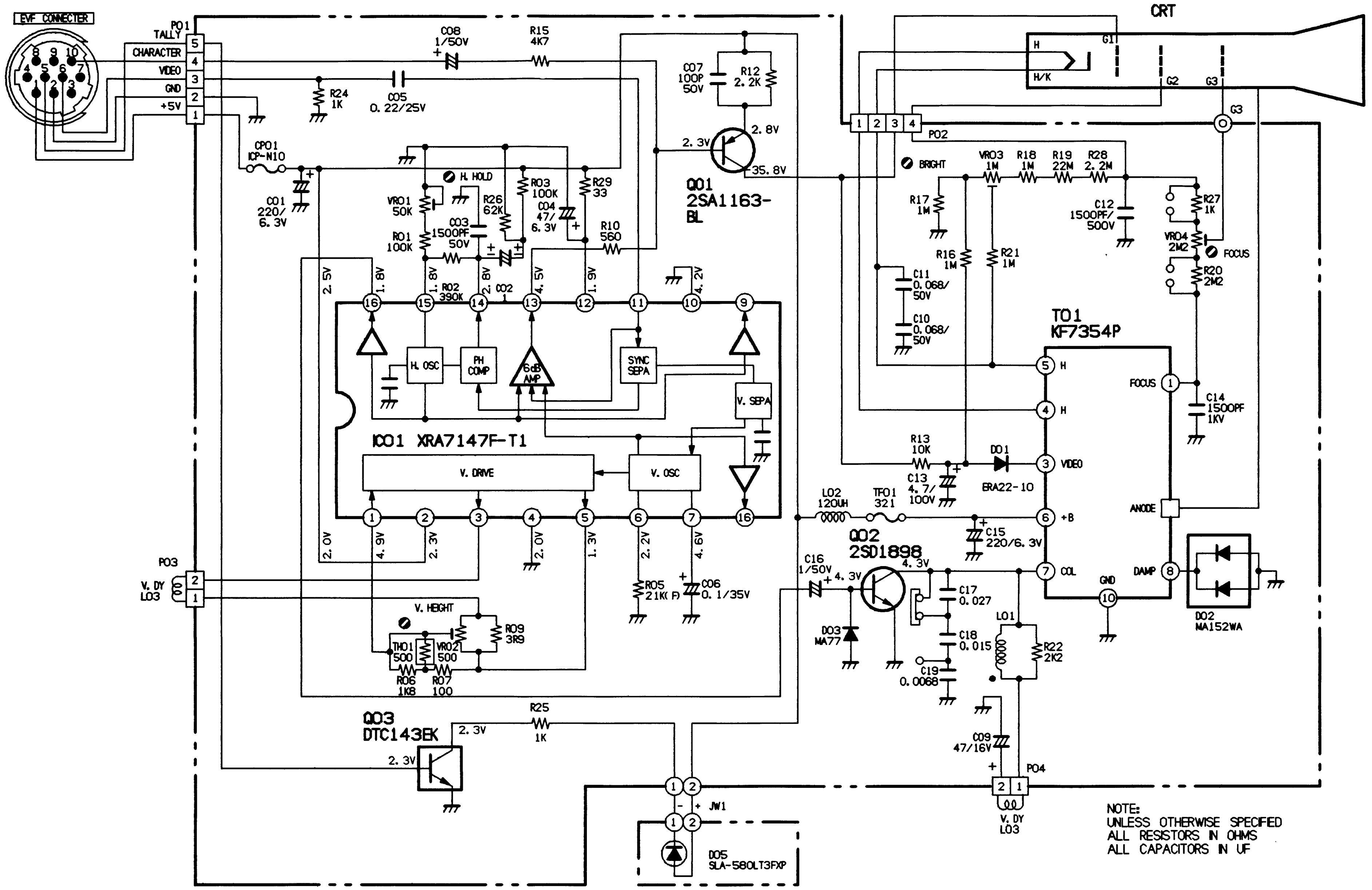

U002
M5222
4.8V
Q1
2SC4081BQ
C9 4.7/16V
C10 0.01
R9 10K
2.4V
2.3V
R10 22K
2.4V
2.4V
C11 22/10V
C12 0.22
R16 1K5
10/10V
R15 1K
R17 5K6
C13 0.015
C16 100/16V
CN1
SOUT
E
5V
E
FADE
9V
FROM/TO SSPA PCB N204
R12 10K
2.6V
2.6V
R14 4K7
2.6V
R13 8K2
2SC4081BQ

…WISE SPECIFIED
…N OHMS
…S IN UF

INDICATED VOLTAGES ARE MEASURED IN REC MODE.

—— : SIGNAL LINE

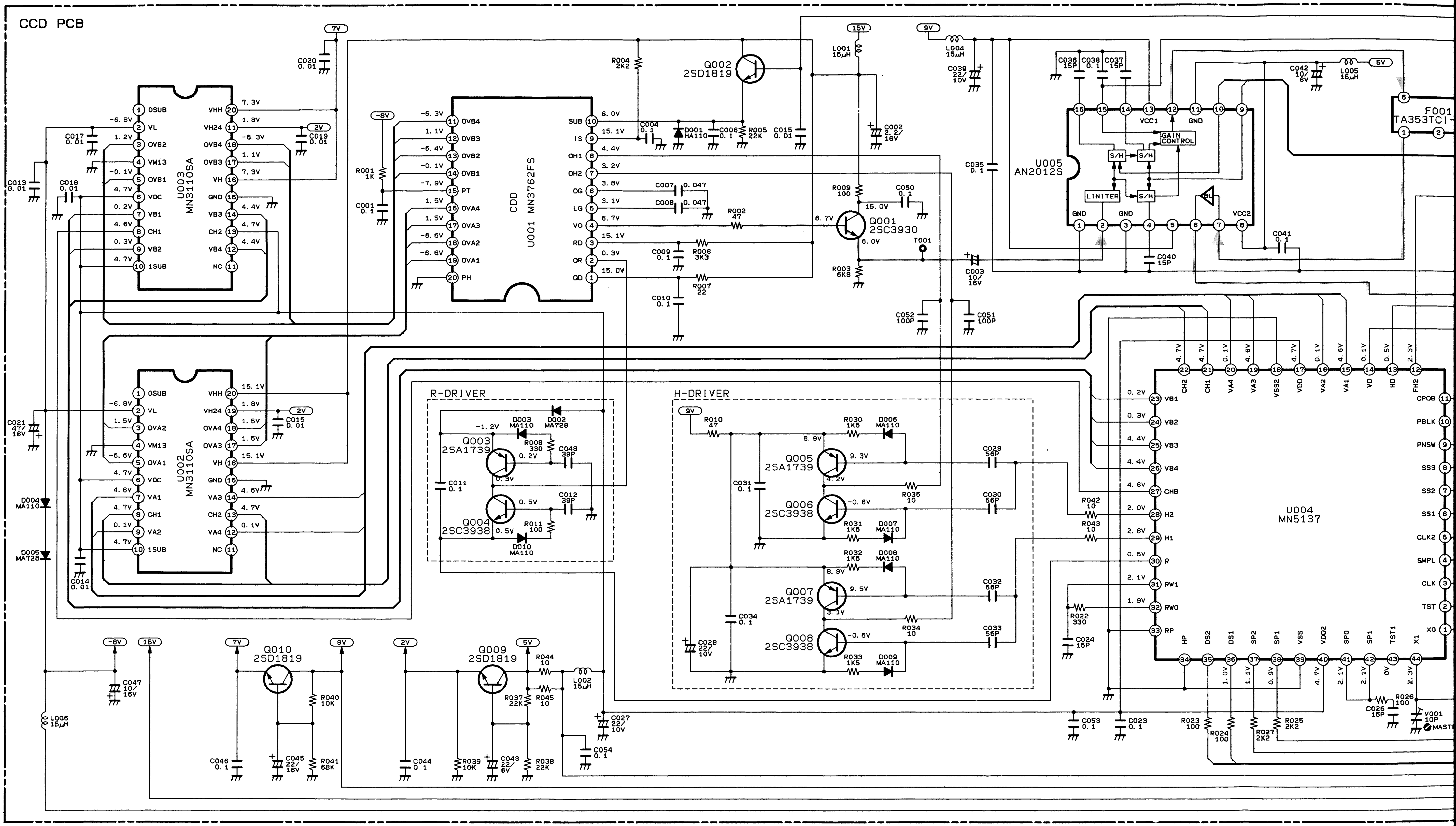
MIC AMP SCHEMATIC DIAGRAM

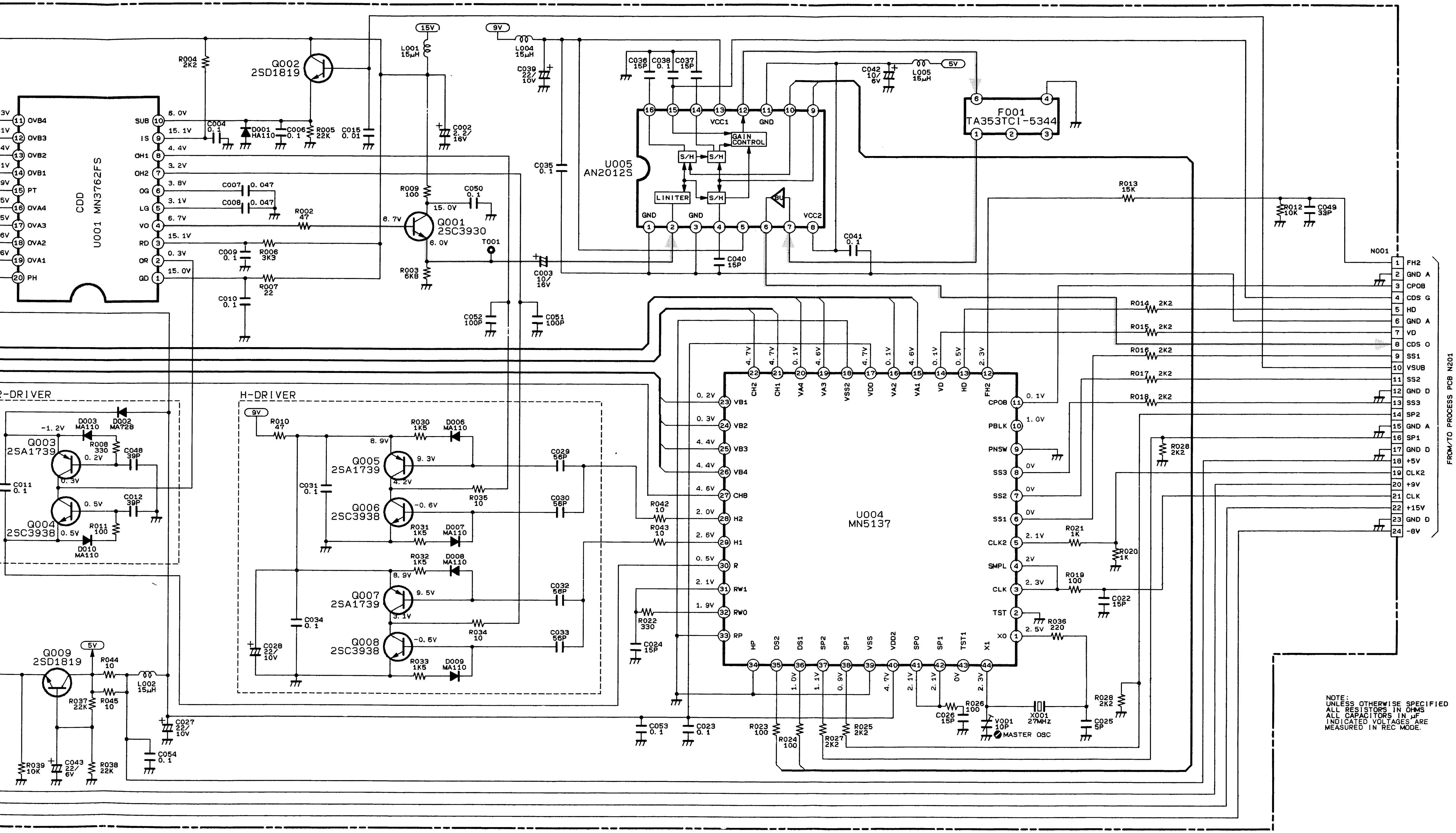

EVF CONNECTER
P01
TALLY
CHARACTER
VIDEO
GND
+5V
C08 1/50V
R15 4K7
R24 1K
C05 0.22/25V
CP01 ICP-N10
C01 220/6.3V
H. HOLD
VR01 50K
R01 100K
R26 62K
C03 1500PF 50V
R03 100K
C04 47/6.3V
R29 33
R10 560
R02 390K
C02
C07 100P 50V
R12 2.2K
Q01 2SA1163-BL
2.3V
2.8V
35.8V
H. OSC
PH COMP
6dB AMP
SYNC SEPA
V. SEPA
IC01 XRA7147F-T1
V. DRIVE
V. OSC
R05 21K(F)
C06 0.1/35V
V. HEIGHT
TH01 500
VR02 500
R09 3R9
R06 1K8
R07 100
P03
V. DY
L03
Q03 DTC143EK
2.3V
2.3V
R25 1K
JW1
D05 SLA-580LT3FXP
CRT
H
H/K
G1
G2
G3
P02
BRIGHT
VR03 1M
R18 1M
R19 22M
R28 2.2M
R17 1M
C12 1500PF/500V
R27 1K
VR04 2M2
FOCUS
R20 2M2
R16 1M
R21 1M
C11 0.068/50V
C10 0.068/50V
T01 KF7354P
FOCUS
C14 1500PF 1KV
R13 10K
C13 4.7/100V
D01 ERA22-10
VIDEO
L02 120UH
TF01 321
+B
ANODE
C15 220/6.3V
Q02 2SD1898
C16 1/50V
4.3V
4.3V
C17 0.027
COL
GND
DAMP
D03 MA77
C18 0.015
C19 0.0068
L01
R22 2K2
C09 47/16V
P04
V. DY
L03
D02 MA152WA

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN UF

EVF SCHEMATIC DIAGRAM

10-15. CCD SCHEMATIC DIAGRAM


CCD PCB
U003 MN3110SA
U002 MN3110SA
CDD U001 MN3762FS
Q002 2SD1819
Q001 2SC3930
U005 AN2012S
F001 TA353TCI
U004 MN5137
R-DRIVER
Q003 2SA1739
Q004 2SC3938
H-DRIVER
Q005 2SA1739
Q006 2SC3938
Q007 2SA1739
Q008 2SC3938
Q010 2SD1819
Q009 2SD1819
D001 HA110
D002 MA728
D003 MA110
D004 MA110
D005 MA728
D006 MA110
D007 MA110
D008 MA110
D009 MA110
D010 MA110
T001
LIMITER
GAIN CONTROL
S/H
VCC1
VCC2
GND
-8V
15V
7V
9V
2V
5V
L001 15µH
L002 15µH
L004 15µH
L005 15µH
L006 15µH
VOD1 10P
MASTER

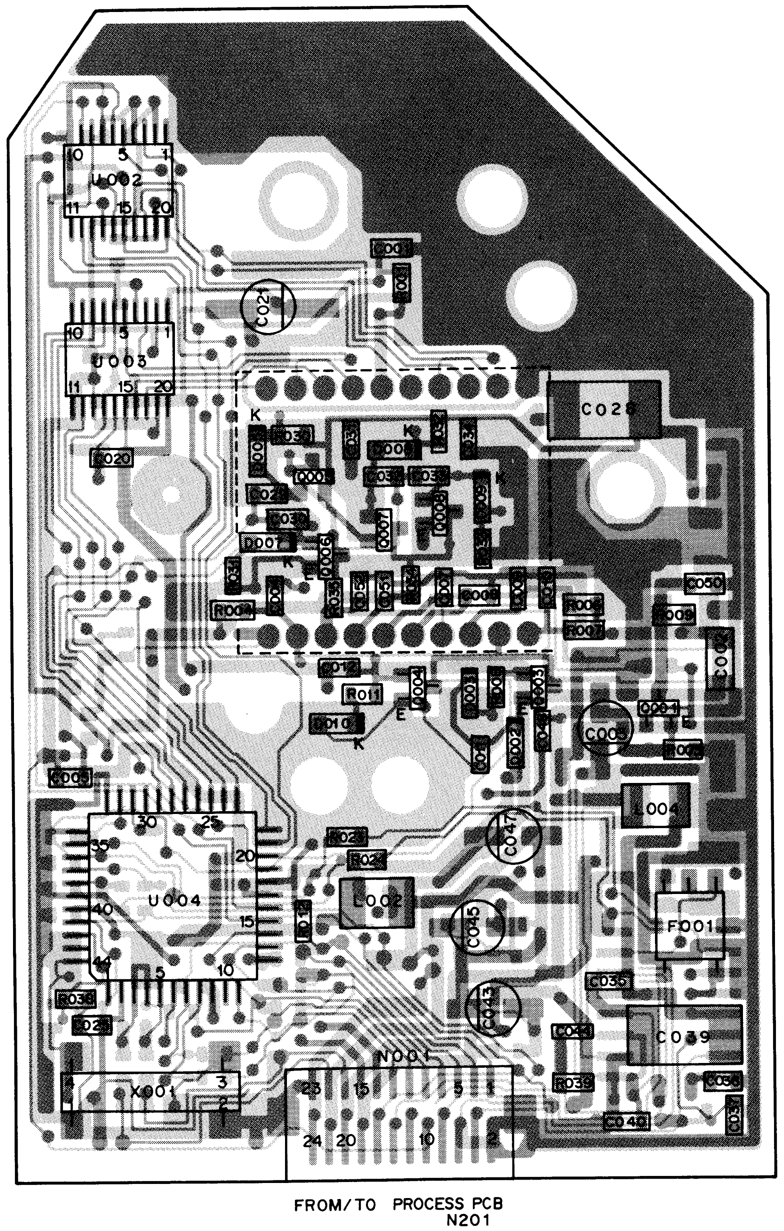

CDD
U001 MN3762FS
OVB4
OVB3
OVB2
OVB1
PT
OVA4
OVA3
OVA2
OVA1
PH
SUB
IS
OH1
OH2
OG
LG
VO
RD
OR
OD
6.0V
15.1V
4.4V
3.2V
3.8V
3.1V
6.7V
15.1V
0.3V
15.0V
R004 2K2
Q002 2SD1819
C004 0.1
D001 HA110
C006 0.1
R005 22K
C015 0.01
C007 0.047
C008 0.047
R002 47
C009 0.1
R006 3K3
C010 0.1
R007 22
15V
L001 15µH
C002 2.2/16V
R009 100
C050 0.1
15.0V
8.7V
Q001 2SC3930
6.0V
R003 6K8
T001
C003 10/16V
C052 100P
C051 100P
9V
L004 15µH
C039 22/10V
C035 0.1
U005 AN2012S
C036 15P
C038 0.1
C037 15P
VCC1
GND
GAIN CONTROL
S/H
LIMITER
VCC2
C040 15P
C041 0.1
C042 10/6V
L005 15µH
5V
F001 TA353TCI-5344
R013 15K
R012 10K
C049 33P
N001
FH2
GND A
CPOB
CDS G
HD
GND A
VD
CDS O
SS1
VSUB
SS2
GND D
SS3
SP2
GND A
SP1
GND D
+5V
CLK2
+9V
CLK
+15V
GND D
-8V
FROM/TO PROCESS PCB N201
R014 2K2
R015 2K2
R016 2K2
R017 2K2
R018 2K2
R028 2K2
U004 MN5137
CH2
CH1
VA4
VA3
VSS2
VDD
VA2
VA1
VD
HD
FH2
VB1
VB2
VB3
VB4
CHB
H2
H1
R
RW1
RW0
RP
CPOB
PBLK
PNSW
SS3
SS2
SS1
CLK2
SMPL
CLK
TST
XO
HP
DS2
DS1
SP2
SP1
VSS
VDD2
SP0
SP1
TST1
X1
R021 1K
R020 1K
R019 100
C022 15P
R036 220
R026 100
C026 15P
V001 10P
MASTER OSC
X001 27MHz
C025 5P
R026 2K2
R023 100
R024 100
R027 2K2
R025 2K2
C053 0.1
C023 0.1
R042 10
R043 10
R022 330
C024 15P
V-DRIVER
Q003 2SA1739
Q004 2SC3938
D003 MA110
D002 MA728
R008 330
C048 39P
C012 39P
C011 0.1
R011 100
D010 MA110
-1.2V
0.2V
0.3V
0.5V
H-DRIVER
R010 47
C031 0.1
Q005 2SA1739
Q006 2SC3938
Q007 2SA1739
Q008 2SC3938
R030 1K5
D006 MA110
R031 1K5
D007 MA110
R032 1K5
D008 MA110
R033 1K5
D009 MA110
R035 10
R034 10
C029 56P
C030 56P
C032 56P
C033 56P
C034 0.1
C028 22/10V
8.9V
9.3V
4.2V
-0.6V
9.5V
3.1V
Q009 2SD1819
R044 10
R045 10
R037 22K
L002 15µH
C027 22/10V
C054 0.1
R039 10K
C043 22/6V
R038 22K

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF
INDICATED VOLTAGES ARE
MEASURED IN REC MODE.

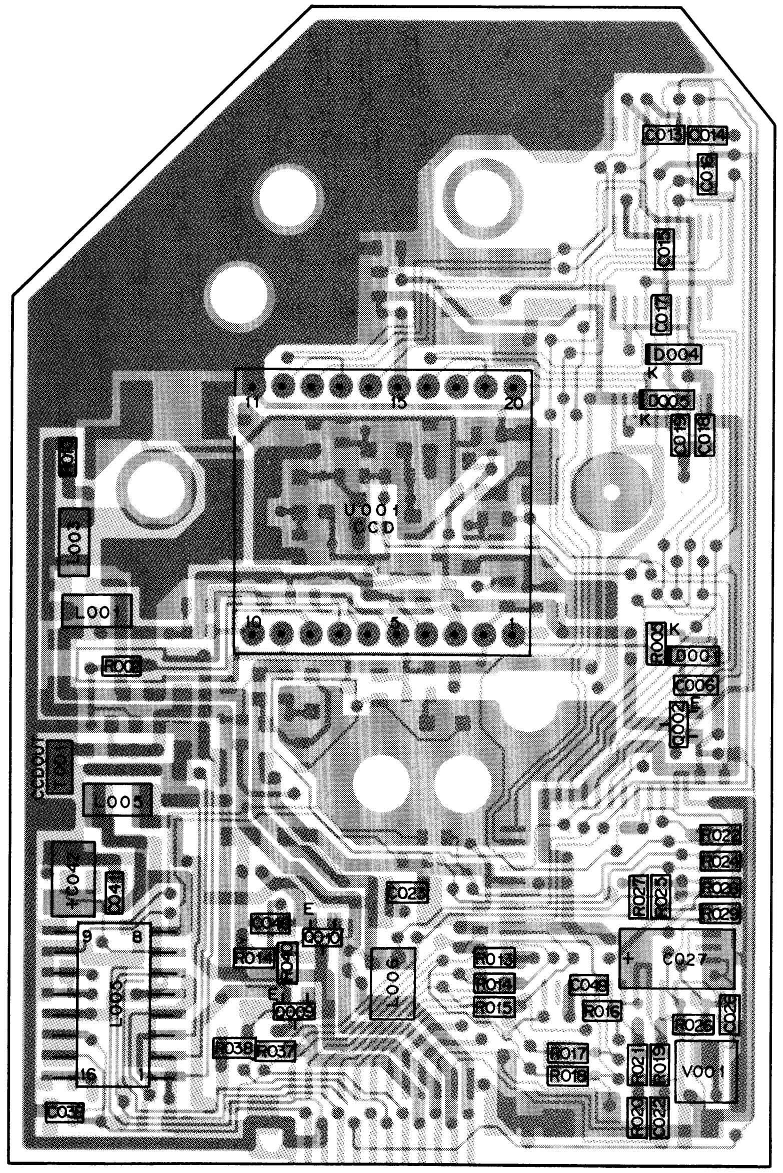
:SIGNAL LINE

CCD SCHEMATIC DIAGRAM
003G03025A2

10-16. CCD PC BOARD

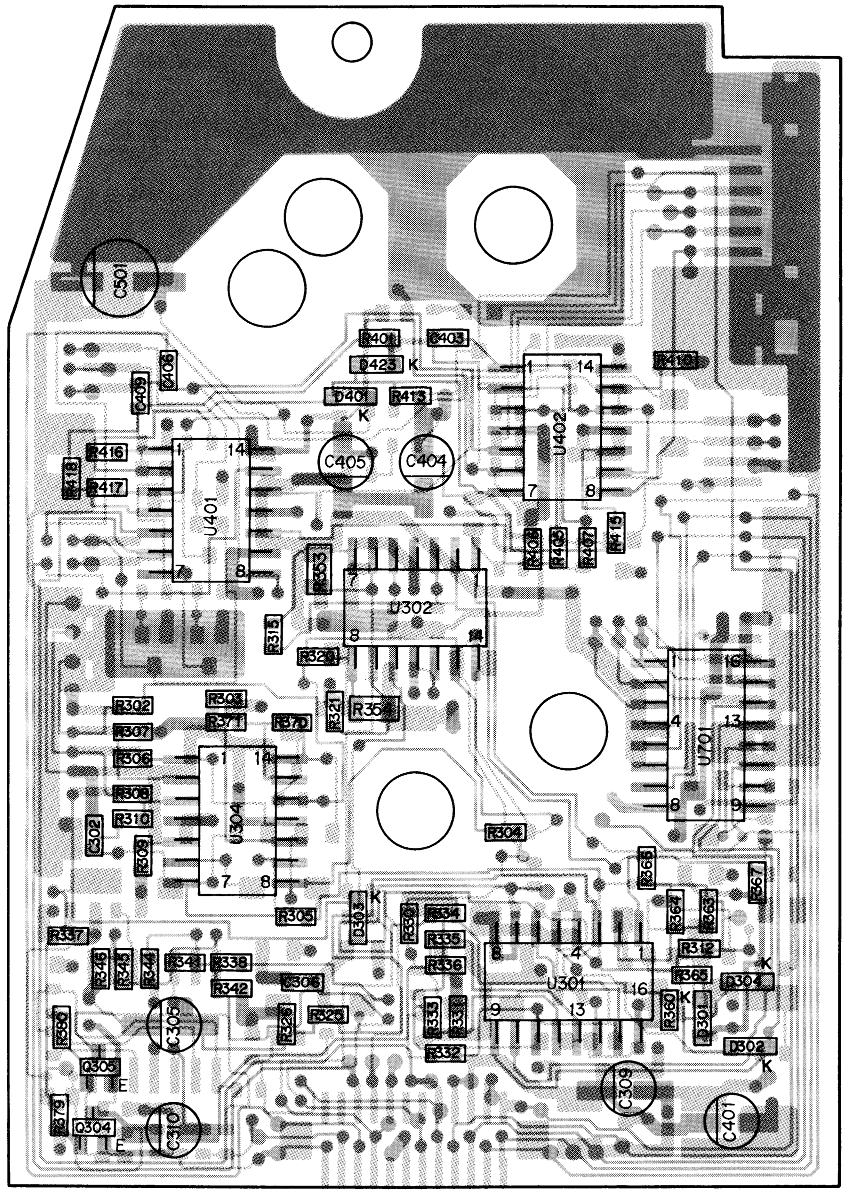

U002
U003
U004
X001
N001
C021
C020
C050
C047
C045
C043
C039
C040
C035
C005
L002
L004
F001
R020
R011
D010
K
E
FROM/TO PROCESS PCB
N201

CCD PCB(A SIDE)
WX002G1513

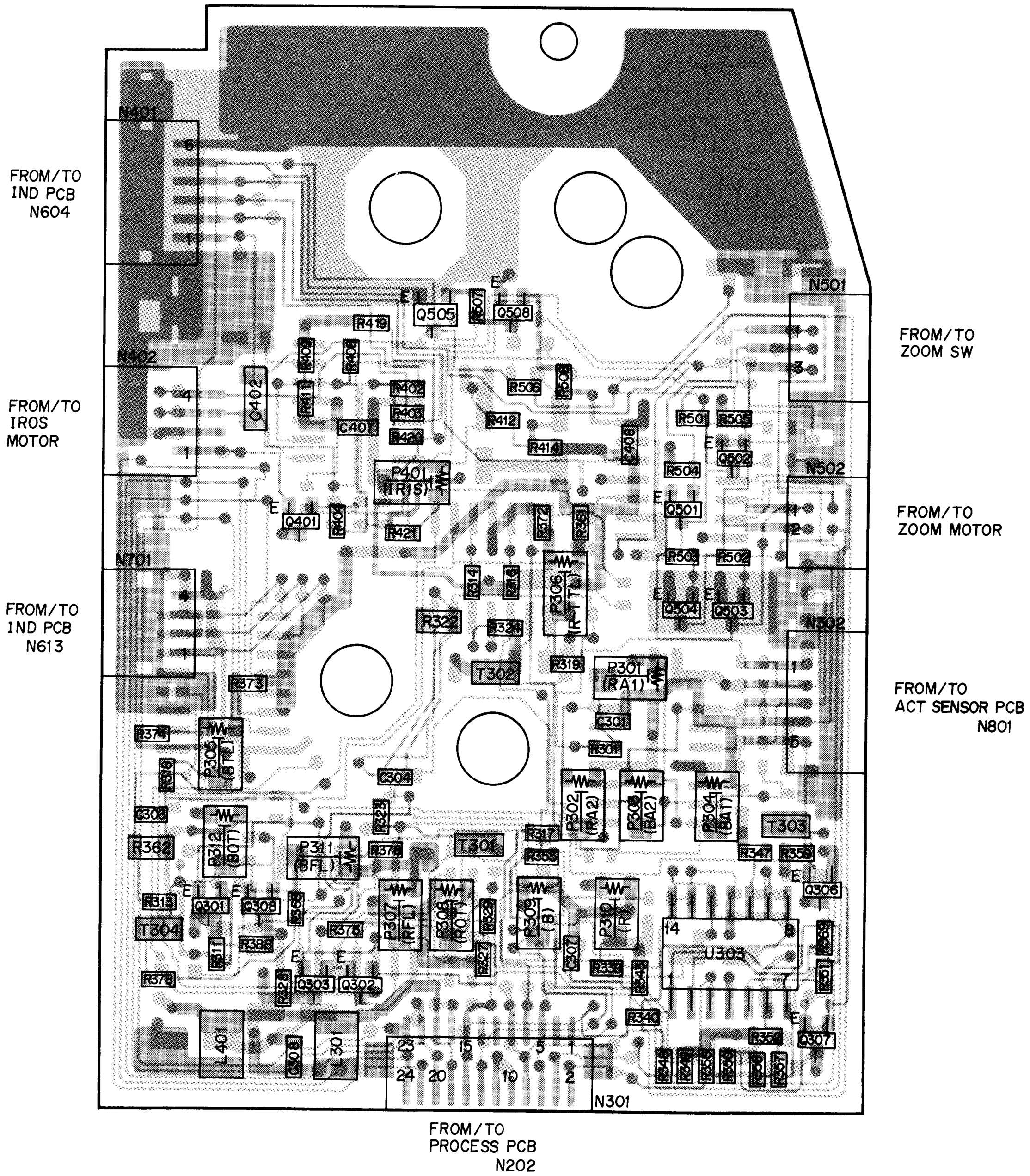

U001
CCD
C013
C014
D004
D005
D003
L001
L005
L006
C027
V001
K
E

CCD PCB(B SIDE)
WX002G1513

10-17. AWB PC BOARD

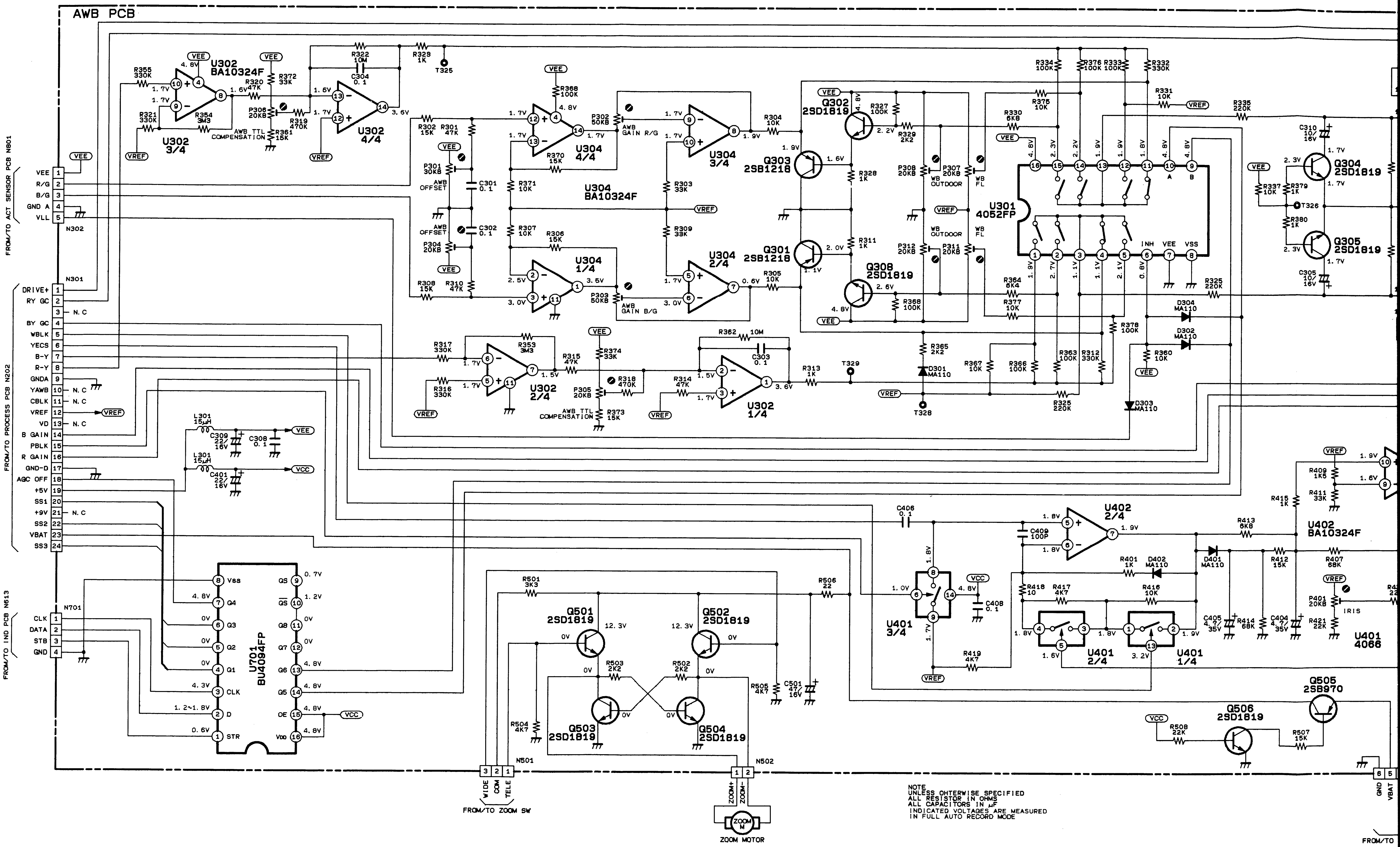


AWB PCB(A SIDE)
WX002G1533

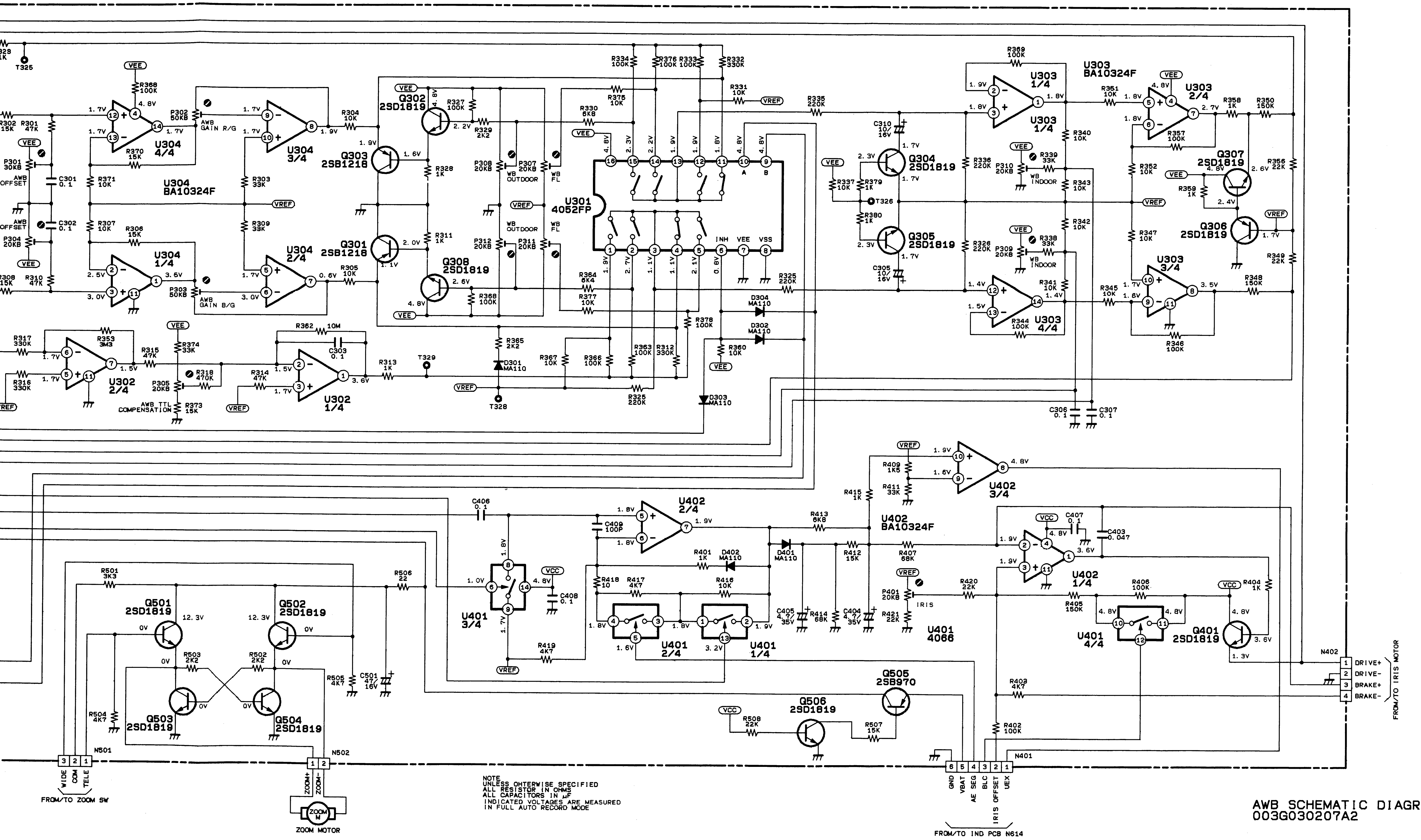

FROM/TO
IND PCB
N604
N401
FROM/TO
IROS
MOTOR
N402
FROM/TO
IND PCB
N613
N701
N501
FROM/TO
ZOOM SW
N502
FROM/TO
ZOOM MOTOR
N302
FROM/TO
ACT SENSOR PCB
N801
N301
FROM/TO
PROCESS PCB
N202

AWB PCB(B SIDE)
WX002G1533

10-18. AWB SCHEMATIC DIAGRAM


AWB PCB
FROM/TO ACT SENSOR PCB N801
VEE 1
R/G 2
B/G 3
GND A 4
VLL 5
N302
N301
FROM/TO PROCESS PCB N202
DRIVE+ 1
RY GC 2
3 N. C
BY GC 4
WBLK 5
YECS 6
B-Y 7
R-Y 8
GNDA 9
YAWB 10 N. C
CBLK 11 N. C
VREF 12
VD 13 N. C
B GAIN 14
PBLK 15
R GAIN 16
GND-D 17
AGC OFF 18
+5V 19
SS1 20
+9V 21 N. C
SS2 22
VBAT 23
SS3 24
FROM/TO IND PCB N613
N701
CLK 1
DATA 2
STB 3
GND 4
U302 BA10324F
U302 3/4
U302 4/4
U302 2/4
U302 1/4
U304 BA10324F
U304 4/4
U304 3/4
U304 1/4
U304 2/4
AWB TTL COMPENSATION
AWB OFFSET
AWB GAIN R/G
AWB GAIN B/G
Q302 2SD1819
Q303 2SB1218
Q301 2SB1218
Q308 2SD1819
U301 4052FP
WB OUTDOOR
WB FL
INH VEE VSS
Q304 2SD1819
Q305 2SD1819
D304 MA110
D302 MA110
D303 MA110
D301 MA110
T325
T326
T328
T329
L301 15μH
C309 22/16V
C308 0.1
C401 22/16V
U701 BU4094FP
V88 Q4 Q3 Q2 Q1 CLK D STR
Q5 Q5 Q8 Q7 Q6 Q5 OE VDD
U402 2/4
U402 BA10324F
U401 3/4
U401 2/4
U401 1/4
U401 4066
D401 MA110
D402 MA110
IRIS
Q501 2SD1819
Q502 2SD1819
Q503 2SD1819
Q504 2SD1819
Q505 2SB970
Q506 2SD1819
N501
WIDE COM TELE
FROM/TO ZOOM SW
N502
ZOOM+ ZOOM-
ZOOM M
ZOOM MOTOR
GND VBAT
FROM/TO

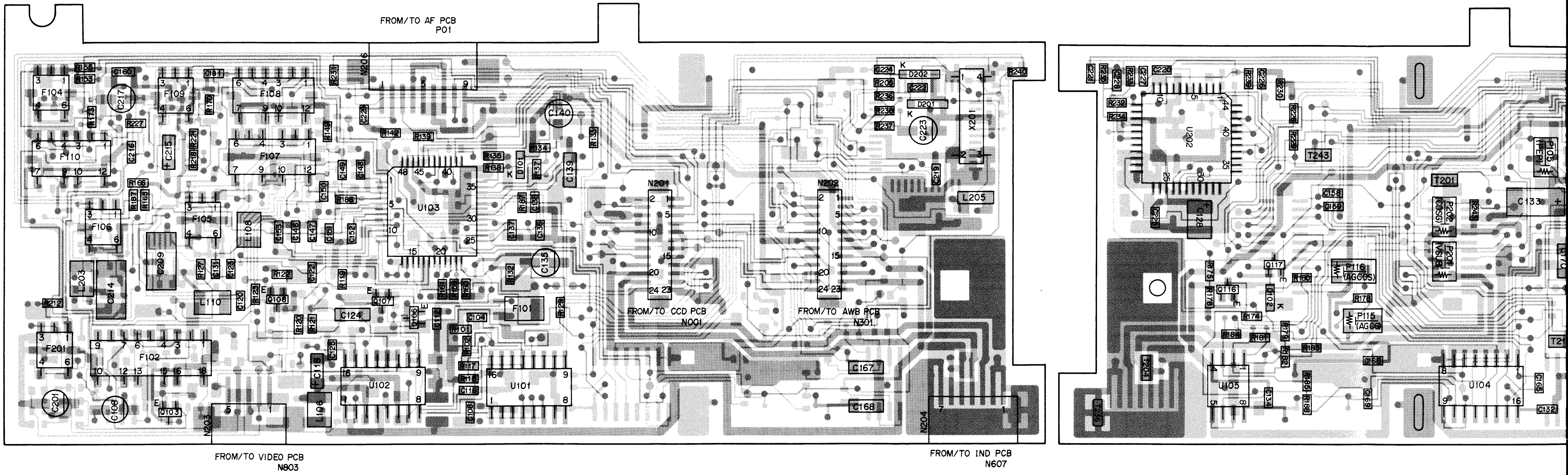
NOTE
UNLESS OHTERWISE SPECIFIED
ALL RESISTOR IN OHMS
ALL CAPACITORS IN μF
INDICATED VOLTAGES ARE MEASURED
IN FULL AUTO RECORD MODE


U304 BA10324F
U304 4/4
U304 3/4
U304 2/4
U304 1/4
AWB OFFSET
AWB GAIN R/G
AWB GAIN B/G
Q303 2SB1218
Q301 2SB1218
Q302 2SD1819
Q308 2SD1819
WB OUTDOOR
WB FL
U301 4052FP
INH
VEE
VSS
U302 2/4
U302 1/4
AWB TTL COMPENSATION
D304 MA110
D302 MA110
D303 MA110
D301 MA110
T325
T328
T329
T326
U303 BA10324F
U303 1/4
U303 2/4
U303 3/4
U303 4/4
Q304 2SD1819
Q305 2SD1819
Q307 2SD1819
Q306 2SD1819
WB INDOOR
C306 0.1
C307 0.1
U402 3/4
U402 2/4
U402 1/4
U402 BA10324F
D402 MA110
D401 MA110
U401 3/4
U401 2/4
U401 1/4
U401 4/4
U401 4066
IRIS
Q401 2SD1819
Q501 2SD1819
Q502 2SD1819
Q503 2SD1819
Q504 2SD1819
Q505 2SB970
Q506 2SD1819
N501
WIDE
COM
TELE
FROM/TO ZOOM SW
N502
ZOOM+
ZOOM-
ZOOM M
ZOOM MOTOR
N401
GND
VBAT
AE SEG
BLC
IRIS OFFSET
UEX
FROM/TO IND PCB N614
N402
DRIVE+
DRIVE-
BRAKE+
BRAKE-
FROM/TO IRIS MOTOR
VEE
VCC
VREF

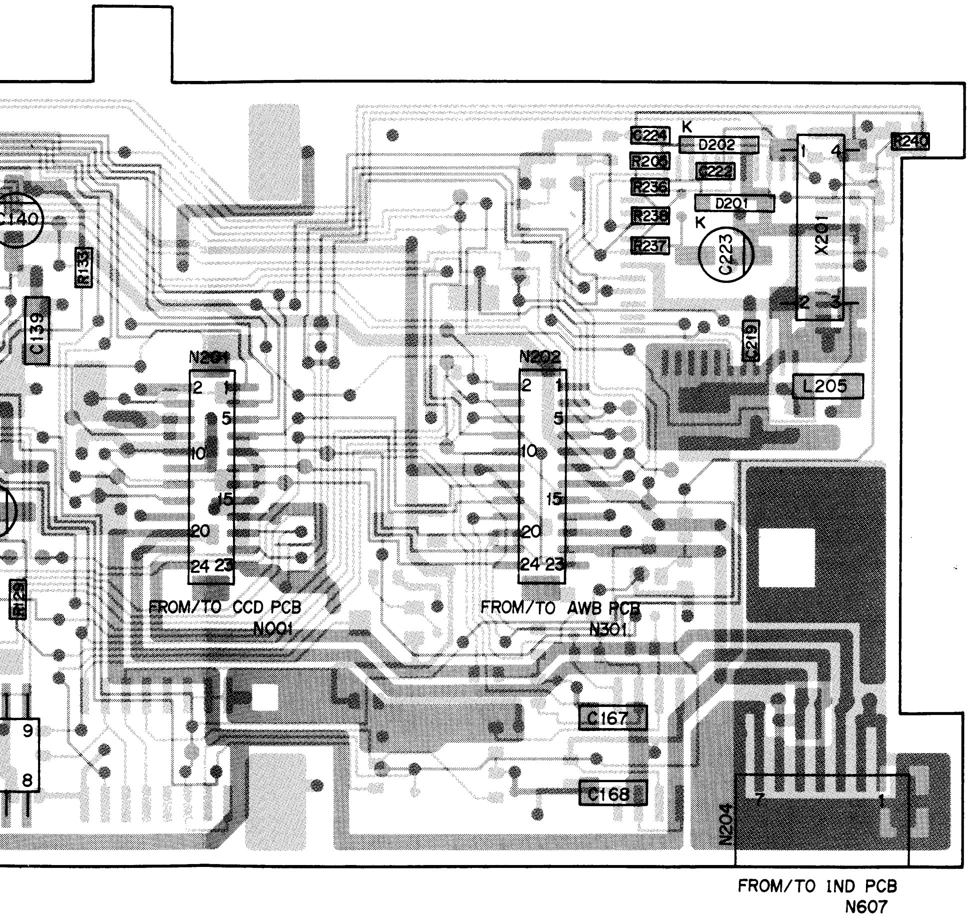
NOTE
UNLESS OHTERWISE SPECIFIED
ALL RESISTOR IN OHMS
ALL CAPACITORS IN μF
INDICATED VOLTAGES ARE MEASURED
IN FULL AUTO RECORD MODE

AWB SCHEMATIC DIAGRAM
003G030207A2

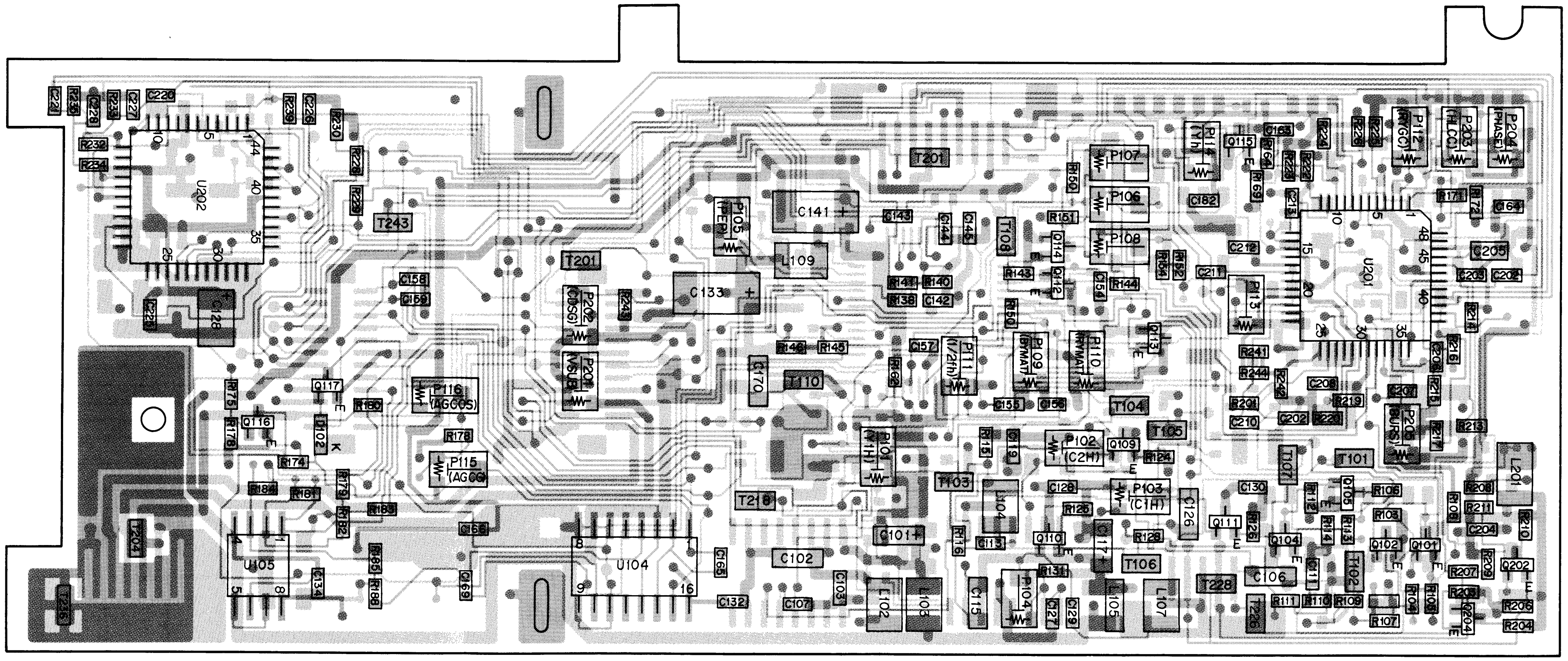
10-19. PROCESS PC BOARD


FROM/TO AF PCB
P01
N206
U103
U101
U102
N201
N202
X201
U202
U104
U105
F101
F102
F104
F105
F106
F107
F108
F109
F110
F201
P116 (AGC05)
P115 (AGC)
FROM/TO CCD PCB
N001
FROM/TO AWB PCB
N301
N203
FROM/TO VIDEO PCB
N803
N204
FROM/TO IND PCB
N607

PROCESS PCB(A SIDE)
WX002G 1523

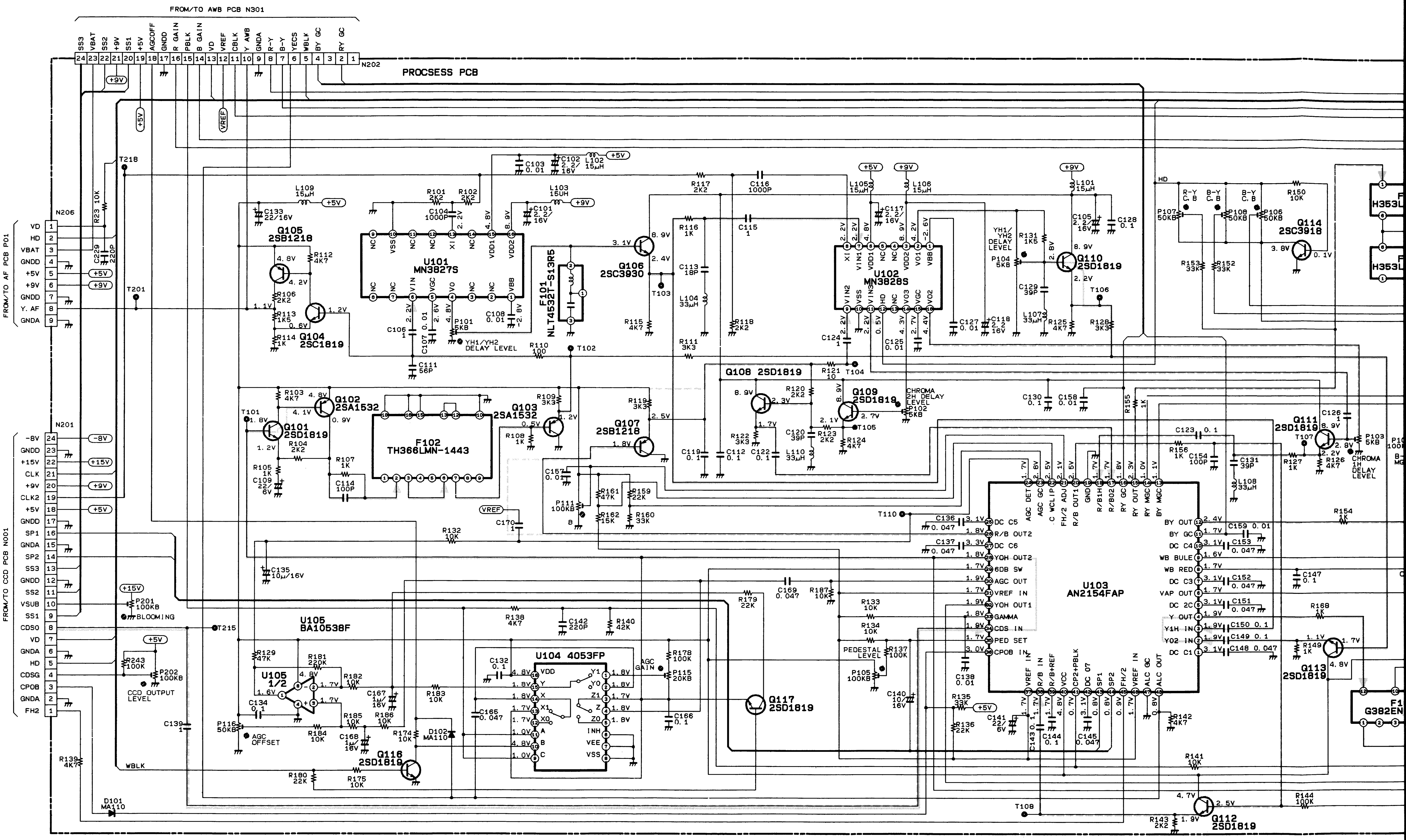

FROM/TO CCD PCB
N001
FROM/TO AWB PCB
N301
N201
N202
N204
FROM/TO IND PCB
N607
X201
L205
C223
C167
C168

PROCESS PCB(A SIDE)
WX002G 1523


U202
U201
U104
U105
T201
T243
C141
C133
L109
L201
P107
P106
P108
P116
(AGCCS)
P115
(AGCG)
P102
(C2H)
P103
(C1H)
P203
(ALC)
P204
(PHASE)

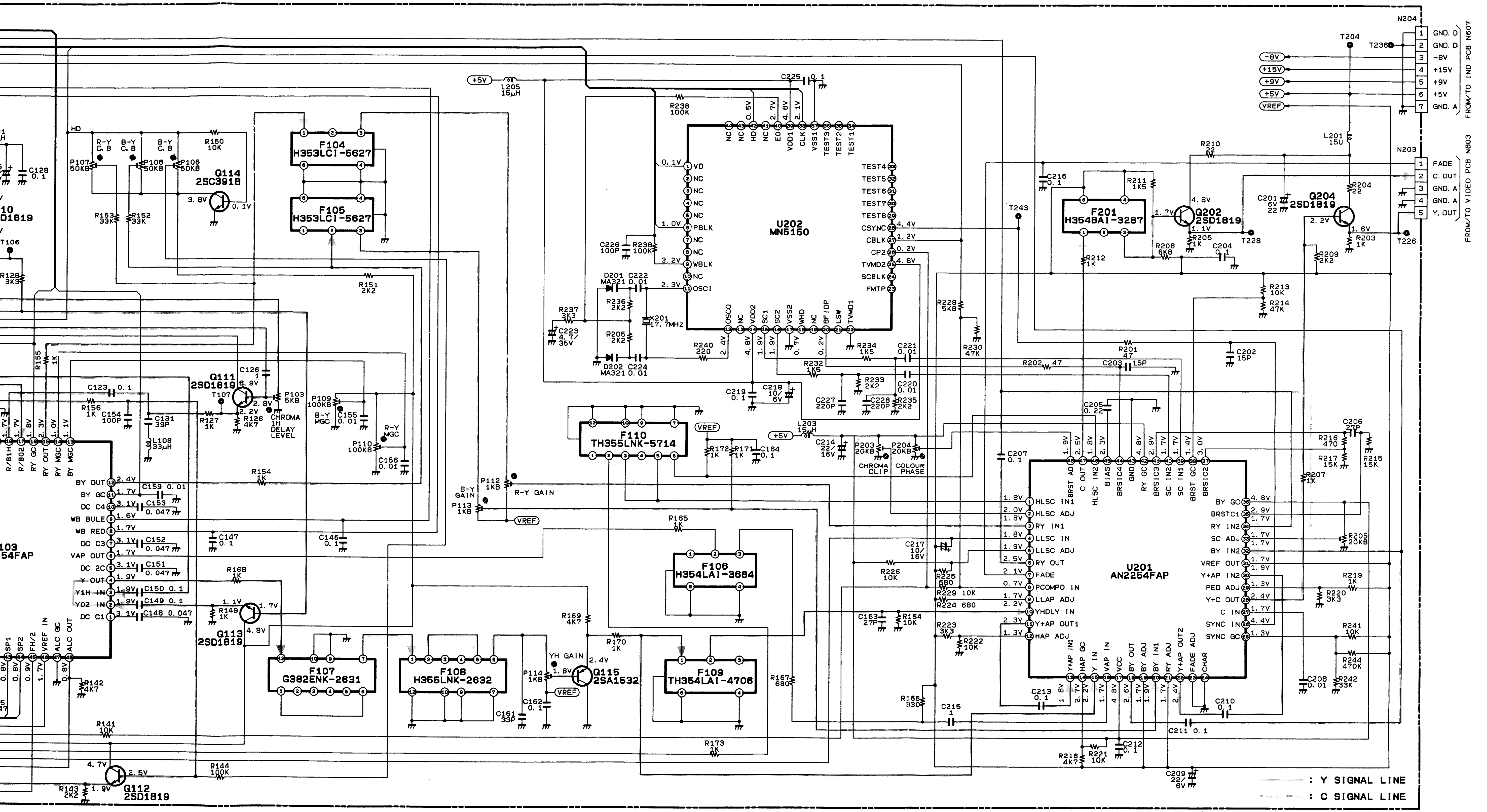
PROCESS PCB(B SIDE)
WX002G 1523

10-20. PROCESS SCHEMATIC DIAGRAM


FROM/TO AWB PCB N301
SS3
VBAT
SS2
+9V
SS1
+5V
AGCOFF
GNDD
R GAIN
PBLK
B GAIN
VD
VREF
CBLK
Y AWB
GNDA
R-Y
B-Y
YECS
WBLK
BY GC
RY GC
N202
PROCSESS PCB
FROM/TO AF PCB P01
N206
VD
HD
VBAT
GNDD
+5V
+9V
GNDD
Y. AF
GNDA
FROM/TO CCD PCB N001
N201
-8V
GNDD
+15V
CLK
+9V
CLK2
+5V
GNDD
SP1
GNDA
SP2
SS3
GNDD
SS2
VSUB
SS1
CDSO
VD
GNDA
HD
CDSG
CPOB
GNDA
FH2
T218
T201
T101
T102
T103
T104
T105
T106
T107
T108
T110
T215
R23 10K
C229 220P
Q105 2SB1218
Q104 2SC1819
Q101 2SD1819
Q102 2SA1532
Q103 2SA1532
Q106 2SC3930
Q107 2SB1218
Q108 2SD1819
Q109 2SD1819
Q110 2SD1819
Q111 2SD1819
Q112 2SD1819
Q113 2SD1819
Q114 2SC3918
Q116 2SD1819
Q117 2SD1819
U101 MN3827S
U102 MN3828S
U103 AN2154FAP
U104 4053FP
U105 BA10538F
U105 1/2
F101 NLT4532T-S13R5
F102 TH366LMN-1443
D101 MA110
D102 MA110
P101 5KB YH1/YH2 DELAY LEVEL
P102 5KB CHROMA 2H DELAY LEVEL
P103 5KB CHROMA 1H DELAY LEVEL
P104 5KB YH1/YH2 DELAY LEVEL
P105 100KB PEDESTAL LEVEL
P106 50KB
P107 50KB
P108 50KB
P111 100KB
P115 20KB AGC GAIN
P116 50KB AGC OFFSET
P201 100KB BLOOMING
P202 100KB CCD OUTPUT LEVEL
R-Y C.B
B-Y C.B
B-Y C.B
L101 15μH
L102 15μH
L103 15UH
L104 33μH
L105 15μH
L106 15μH
L107 33μH
L108 33μH
L109 15μH
L110 33μH
BY OUT
BY GC
DC C4
WB BULE
WB RED
DC C3
VAP OUT
DC 2C
Y OUT
Y1H IN
Y02 IN
DC C1
DC C5
R/B OUT2
DC C6
YOH OUT2
6DB SW
AGC OUT
VREF IN
YOH OUT1
GAMMA
CDS IN
PED SET
CPOB IN
AGC DET
AGC GC
C WCLIP
FH/2 ADJ
R/B OUT1
GND
R/B1H
R/B02
RY GC
RY OUT
RY MGC
BY MGC
VREF
R/B IN
R/B+REF
VCC
CP2+PBLK
DC 07
SP1
SP2
FH/2
VREF IN
ALC GC
ALC OUT
WBLK
HD
H353L
G382EN

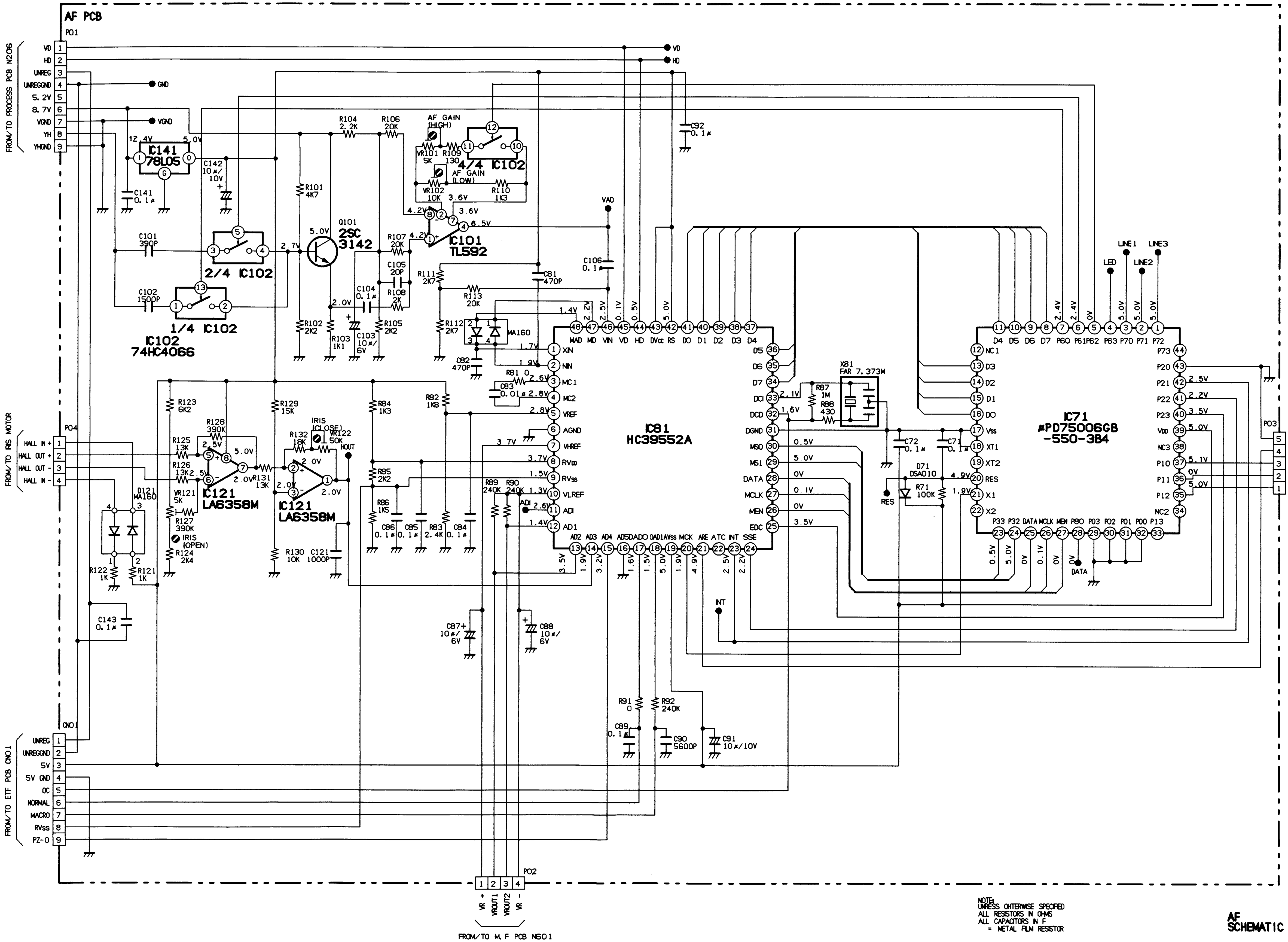
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF

INDCATED VOLTAGES ARE MEASURED
IN FULL AUTO. REC MODE.


U202
MN5150
U201
AN2254FAP
F104
H353LCI-5627
F105
H353LCI-5627
F110
TH355LNK-5714
F106
H354LAI-3684
F107
G382ENK-2631
F108
H355LNK-2632
F109
TH354LAI-4706
F201
H354BAI-3287
Q114
2SC3918
Q111
2SD1819
Q113
2SD1819
Q112
2SD1819
Q115
2SA1532
Q202
2SD1819
Q204
2SD1819
N204
GND. D
GND. D
-8V
+15V
+9V
+5V
GND. A
FROM/TO IND PCB N607
N203
FADE
C. OUT
GND. A
GND. A
Y. OUT
FROM/TO VIDEO PCB N803
X201
17.7MHz
P103
5KB
CHROMA 1H DELAY LEVEL
P112
1KB
R-Y GAIN
P113
1KB
B-Y GAIN
P114
1KB
YH GAIN
P203
20KB
CHROMA CLIP
P204
20KB
COLOUR PHASE
P109
100KB
B-Y MGC
P110
100KB
R-Y MGC
P107
50KB
P108
50KB
P106
50KB
R-Y C. B
B-Y C. B
B-Y C. B
VREF
+5V
L205
15µH
L203
15µH
L201
15U
L108
33µH
: Y SIGNAL LINE
: C SIGNAL LINE

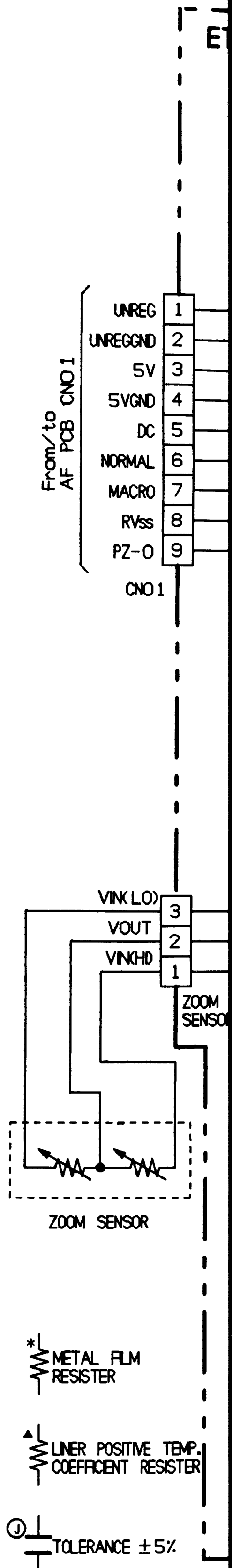
PROCESS SCHEMATIC DIAGRAM 003G30212-A1

10-22. ETF SCHEMATIC DIAGRAM

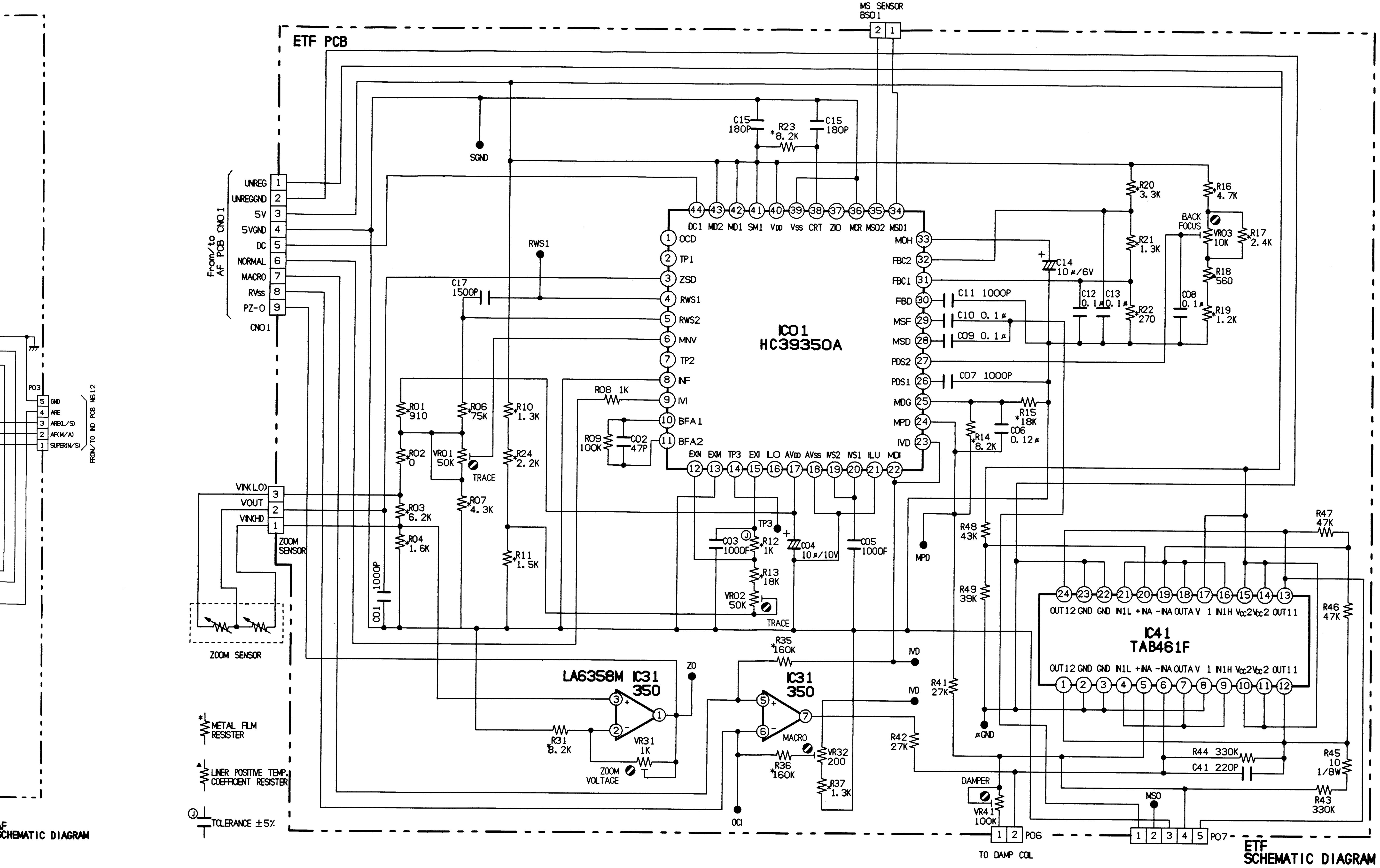

AF PCB
P01
VD
HD
UNREG
UNREGGND
5.2V
8.7V
VGND
YH
YHGND
FROM/TO PROCESS PCB N206
GND
VGND
IC141
78L05
C141 0.1µ
C142 10µ/10V
C101 390P
C102 1500P
2/4 IC102
1/4 IC102
IC102
74HC4066
R101 4K7
Q101
2SC3142
R102 2K2
R103 1K1
C103 10µ/6V
C104 0.1µ
R104 2.2K
R106 20K
R107 20K
C105 20P
R108 2K
R105 2K2
AF GAIN (HIGH)
VR101 5K
R109 130
4/4 IC102
AF GAIN (LOW)
VR102 10K
R110 1K3
IC101
TL592
R111 2K7
R113 20K
R112 2K7
C81 470P
C82 470P
MA160
R81 0
C83 0.01µ
R82 1K8
R84 1K3
R85 2K2
R86 1K5
C86 0.1µ
C85 0.1µ
R83 2.4K
C84 0.1µ
R89 240K
R90 240K
C87 10µ/6V
C88 10µ/6V
C92 0.1µ
C106 0.1µ
VAD
IC81
HC39552A
XIN
NIN
MC1
MC2
VREF
AGND
VHREF
RVDD
RVSS
VLREF
ADI
AD1
AD2 AD3 AD4 AD5 DAD0 DAD1 AVSS MCK ARE ATC INT SSE
MAD MD VIN VD HD DVCC RS D0 D1 D2 D3 D4
D5 D6 D7 DCI DCD DGND MSO MS1 DATA MCLK MEN EDC
R91 0
R92 240K
C89 0.1µ
C90 5600P
C91 10µ/10V
INT
X81
FAR 7.373M
R87 1M
R88 430
C72 0.1µ
C71 0.1µ
D71
DSA010
R71 100K
RES
IC71
µPD75006GB
-550-3B4
NC1 D3 D2 D1 D0 VSS XT1 XT2 RES X1 X2
D4 D5 D6 D7 P60 P61 P62 P63 P70 P71 P72
P73 P20 P21 P22 P23 VDD NC3 P10 P11 P12 NC2
P33 P32 DATA MCLK MEN P80 P03 P02 P01 P00 P13
LED
LINE1
LINE2
LINE3
DATA
P03
GND
ARE
ARE(L/S)
AF(M/A)
SUPER(N/S)
FROM/TO ND PCB N512
P04
HALL IN+
HALL OUT+
HALL OUT-
HALL IN-
FROM/TO IRIS MOTOR
R123 6K2
R128 390K
R125 13K
R126 13K
VR121 5K
R127 390K
IRIS (OPEN)
R124 2K4
IC121
LA6358M
R131 13K
R129 15K
R132 18K
IRIS (CLOSE)
VR122 50K
HOUT
R130 10K
C121 1000P
D121
MA160
R122 1K
R121 1K
C143 0.1µ
CN01
UNREG
UNREGGND
5V
5V GND
DC
NORMAL
MACRO
RVss
PZ-O
FROM/TO ETF PCB CN01
P02
VR+
VROUT1
VROUT2
VR-
FROM/TO M.F PCB N601

NOTE:
UNLESS OHTERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN F
* METAL FILM RESISTOR

AF
SCHEMATIC DIAGRAM

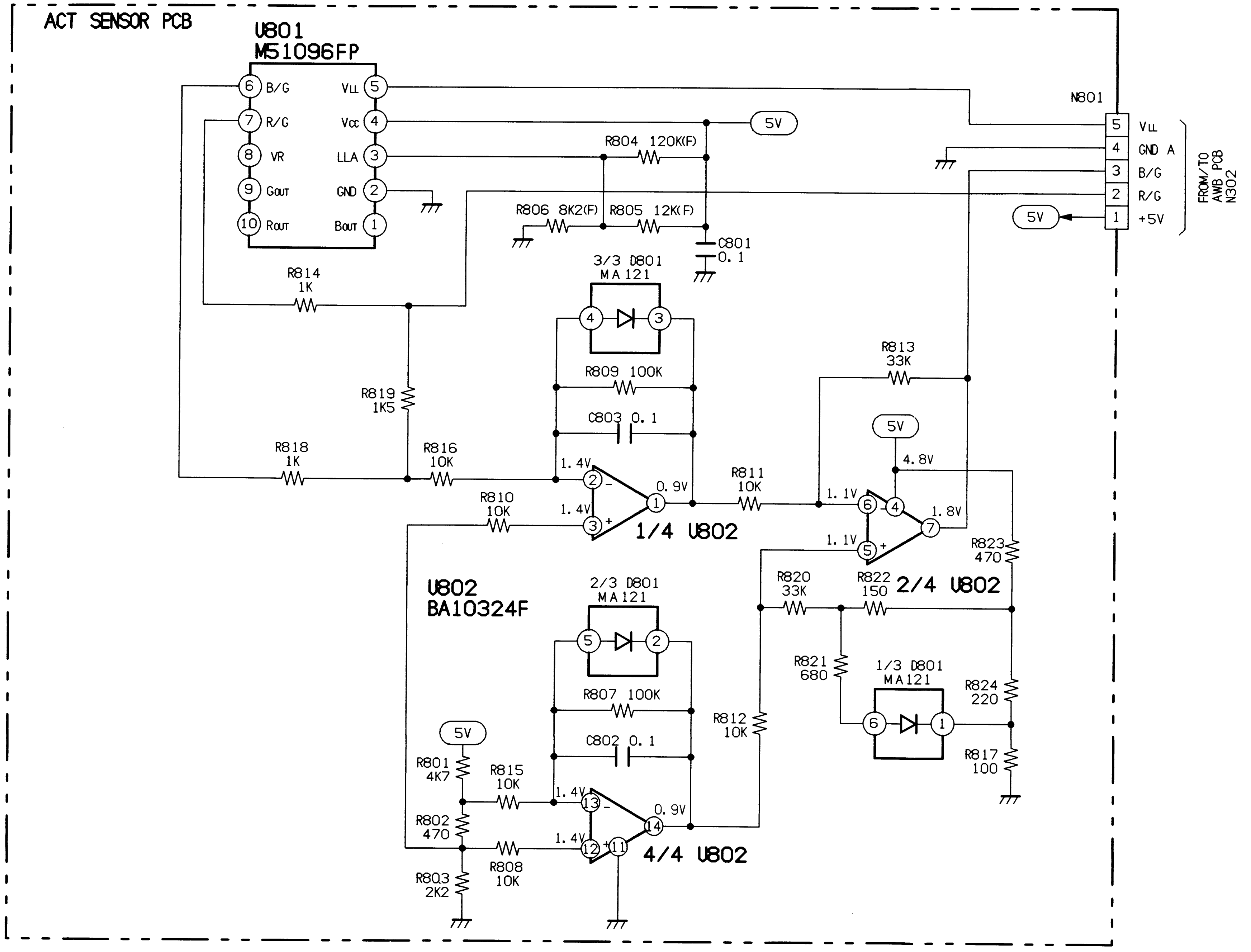

E
UNREG
UNREGGND
5V
5VGND
DC
NORMAL
MACRO
RVss
PZ-O
CN01
From/to AF PCB CN01
VIN(LO)
VOUT
VIN(HI)
ZOOM SENSOR
ZOOM SENSOR
METAL FILM RESISTER
LINER POSITIVE TEMP. COEFFICENT RESISTER
TOLERANCE ±5%

10-22. ETF SCHEMATIC DIAGRAM

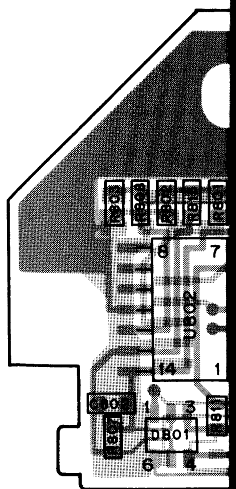

ETF PCB
MS SENSOR
BSO1
From/to AF PCB CNO1
UNREG
UNREGGND
5V
5VGND
DC
NORMAL
MACRO
RVss
PZ-O
CNO1
SGND
RWS1
C15 180P
R23 *8.2K
C15 180P
C17 1500P
IC01
HC39350A
DC1 MD2 MD1 SM1 VDD VSS CRT ZIO MCR MSO2 MSO1
OCD
TP1
ZSD
RWS1
RWS2
MNV
TP2
INF
IVI
BFA1
BFA2
EXN EXM TP3 EXI ILO AVDD AVSS IVS2 IVS1 ILU MDI
MOH
FBC2
FBC1
FBD
MSF
MSD
PDS2
PDS1
MDG
MPD
IVD
R08 1K
R09 100K
C02 47P
R01 910
R02 0
R03 *6.2K
R04 *1.6K
R06 *75K
VR01 50K
TRACE
R07 *4.3K
R10 *1.3K
R24 *2.2K
R11 *1.5K
C01 1000P
C14 10µ/6V
C11 1000P
C10 0.1µ
C09 0.1µ
C07 1000P
C12 0.1µ
C13 0.1µ
C08 0.1µ
R20 *3.3K
R21 *1.3K
R22 *270
R16 *4.7K
BACK FOCUS
VR03 10K
R17 *2.4K
R18 *560
R19 *1.2K
R15 *18K
C06 0.12µ
R14 *8.2K
TP3
C03 1000P
R12 *1K
C04 10µ/10V
C05 1000P
R13 *18K
VR02 50K
TRACE
MPD
R48 43K
R49 39K
R47 47K
R46 47K
IC41
TAB461F
OUT12 GND GND IN1L +INA -INA OUTA V 1 IN1H Vcc2 Vcc2 OUT11
VIN(LO)
VOUT
VIN(HI)
ZOOM SENSOR
ZOOM SENSOR
LA6358M IC31 350
ZO
R31 *8.2K
VR31 1K
ZOOM VOLTAGE
IC31 350
R35 *160K
IVD
IVD
MACRO
VR32 200
R36 *160K
R37 *1.3K
OCI
R41 27K
R42 27K
µGND
DAMPER
VR41 100K
R44 330K
C41 220P
R45 10 1/8W
R43 330K
MSO
PO6
TO DAMP COIL
PO7
PO3
GND
ARE
ARE(L/S)
AF(M/A)
SUPER(N/S)
FROM/TO IND PCB NS12
* METAL FILM RESISTER
▲ LINER POSITIVE TEMP. COEFFICIENT RESISTER
Ⓙ TOLERANCE ±5%
ETF SCHEMATIC DIAGRAM
AF SCHEMATIC DIAGRAM

10-23. ACT SENSOR SCHEMATIC DIAGRAM

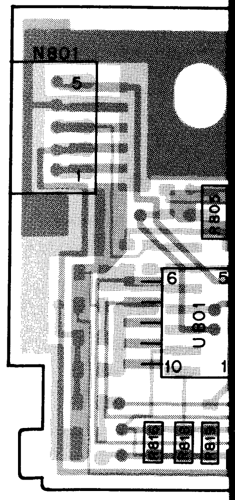
10-24. ACT SENSOR PC BOARD


ACT SENSOR PCB
U801
M51096FP
B/G
R/G
VR
GOUT
ROUT
VLL
VCC
LLA
GND
BOUT
5V
R804 120K(F)
R806 8K2(F)
R805 12K(F)
C801
0.1
N801
VLL
GND A
B/G
R/G
+5V
FROM/TO
AWB PCB
N302
R814
1K
3/3 D801
MA121
R809 100K
C803 0.1
R819
1K5
R818
1K
R816
10K
R810
10K
1.4V
0.9V
1/4 U802
R811
10K
R813
33K
4.8V
1.1V
1.8V
2/4 U802
R823
470
R820
33K
R822
150
U802
BA10324F
2/3 D801
MA121
R807 100K
C802 0.1
R821
680
1/3 D801
MA121
R824
220
R817
100
R812
10K
R801
4K7
R815
10K
R802
470
R808
10K
R803
2K2
4/4 U802

NOTE:
UNLESS OTERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN UF
INDICATED VOLTAGES ARE
MEASURED IN FULL AUTO,
REC MODE.


C802
D801
U802
14
1
6
7

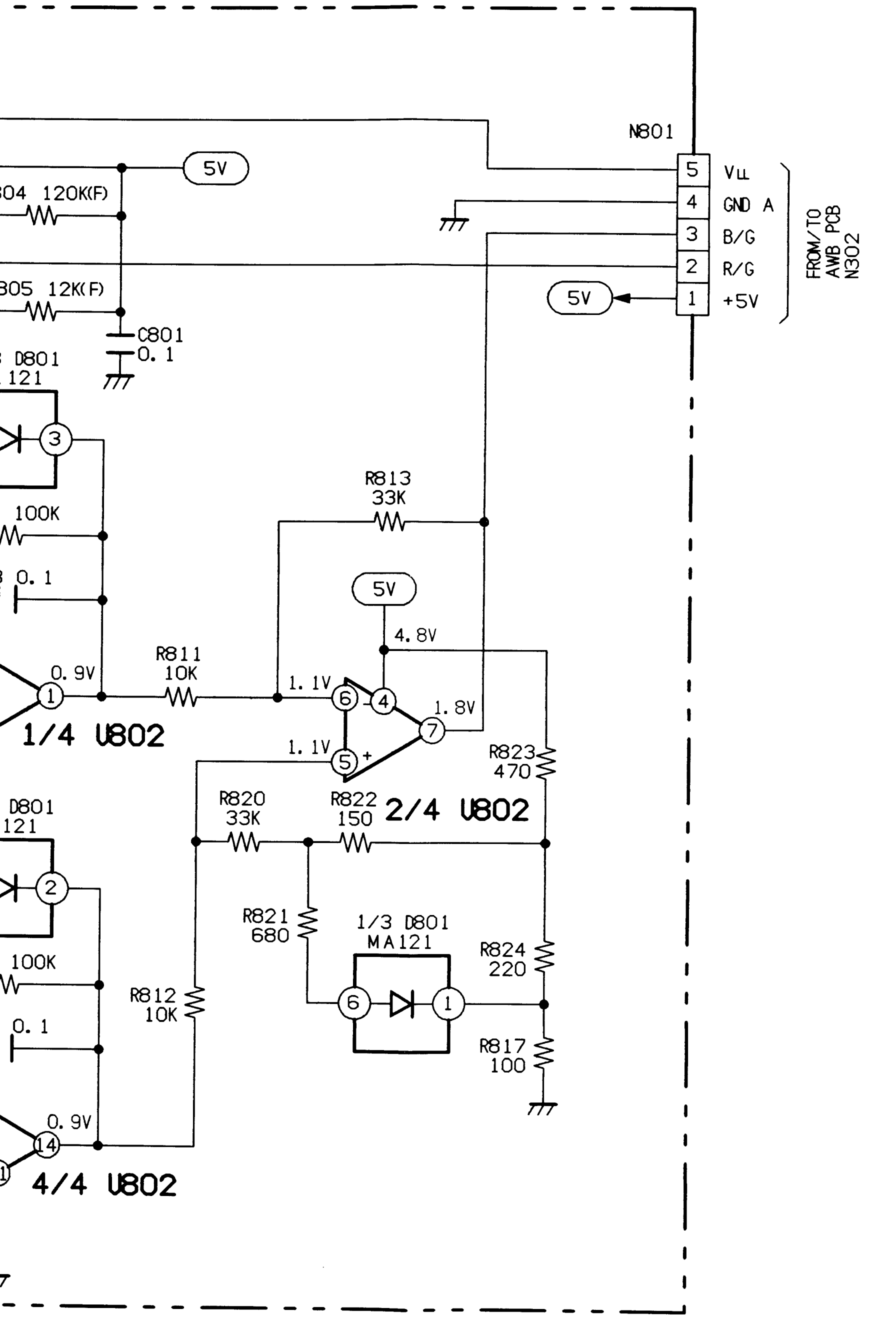
ACT SENSOR
WX002G1543


N801
5
U801
6
10
FROM / TO
AWB PCB
N302

ACT SENSOR PC
WX002G1543

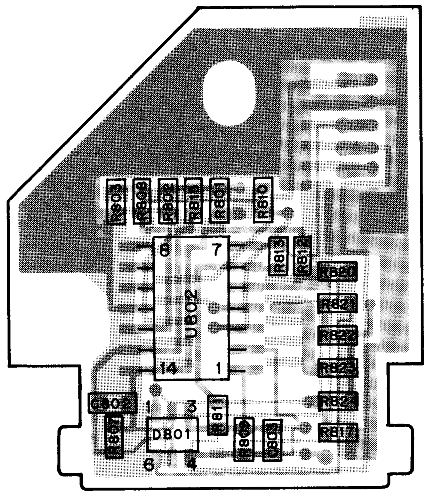
**ACT SENSOR
SCHEMATIC DIAGRAM
003G-030203A4**

10-24. ACT SENSOR PC BOARD

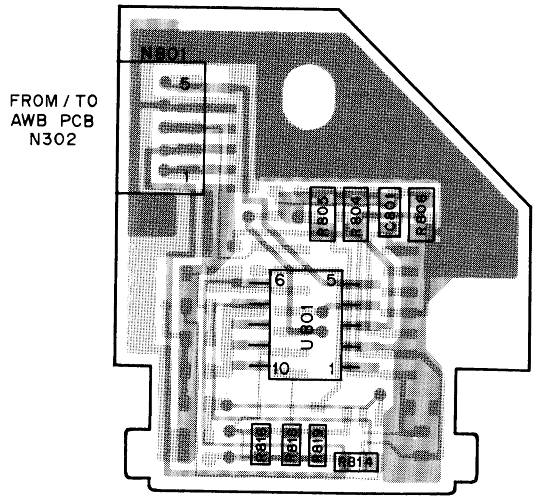

N801
5 VLL
4 GND A
3 B/G
2 R/G
1 +5V
FROM/TO AWB PCB N302
5V
04 120K(F)
805 12K(F)
C801
0.1
D801
121
3
100K
0.1
R813
33K
5V
4.8V
0.9V
1
R811
10K
1.1V
6
4
1.8V
7
1.1V
5
1/4 U802
R823
470
D801
121
R820
33K
R822
150
2/4 U802
2
R821
680
1/3 D801
MA121
R824
220
100K
R812
10K
6
1
0.1
R817
100
0.9V
14
4/4 U802

NOTE:
UNLESS OTERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN UF
INDICATED VOLTAGES ARE
MEASURED IN FULL AUTO,
REC MODE.

ACT SENSOR
SCHEMATIC DIAGRAM
003G-030203A4


R803
R808
R802
R807
R801
R810
8
7
R813
R812
U802
R820
R821
R822
R823
14
1
C802
1
3
R811
R824
R807
D801
R809
R806
R817
6
4

ACT SENSOR PCB (A SIDE)
WX002G1543


FROM / TO
AWB PCB
N302
N801
5
R805
R804
C801
R806
6
5
U801
10
1
R816
R818
R819
R814

ACT SENSOR PCB (B SIDE)
WX002G1543

XI. INFORMATION OF ICs

CV5203/CV5234 SYSCON SERVO μ-CON

Pin No.	Symbol	I/O	Description
1	NC-1		Not used
2	MUXD	I	Analogue multiplexer data input
3	FG	I	Drum FG input
4	—	—	
5	IMEHO	O	Full track erase head on/off control
6	WTALD	I	Supply reel pulse input
7	WTARD	I	Take up reel pulse input
8	S/L	O	Shift/Latch control for UDAC (SAD1009)
9	R/O	I/O	Read/write control for UDAC (SAD1009)
10	RESET	I	Reset input
11	RXD	I	Serial data input from INDICATOR microprocessor and UDAC (SAD1009)
12	NC-2		
13	TXD	O	Serial data output for INDICATOR microprocessor and UDAC (SAD1009)
14	SYNC	I/O	CTL signal
15	FRP	I	Frame pulse (V Sync)
16	FG2D	I	Capstan FG input
17	A/D CON	I	ADC pulse count input
18	DISCHARGE	I	Initialize signal for DAC
19	W/R	O	Read/write control of the CTL signal
20	XTAL 2		12 MHz clock
21	XTAL 1		
22	Vss		GND
23	NC-3		
24	SEL 0	O	Analogue multiplexer channel select
25	SEL 1	O	Signal
26	SWC	I	Mechanism mode sensor input
27	SWB	I	
28	SWA	I	
29	—	—	
30	IRAL	O	Linear audio recording control
31	IPAL	O	Linear audio playback control
32	PSEN	O	
33	ALE	O	
34	NC-4		
35	EA	I	
36	PAV	O	Video/HiFi audio playback control
37	IRAF	O	HiFi audio recording control
38	INDV	O	V sync for INDICATOR microprocessor
39	PG	I	Drum PG input
40	FEHO	O	Flying erase head control
41	HP1	O	Head switching pulse
42	IRRV	O	Video recorging control
43	IFFP	O	Quase V sync for trick playback
44		Vcc	+5 V

CV5222/CV5233 INDICATOR μ-CON

Pin No.	Symbol	I/O	Description
1	NC-1		
2	CLOCK	O	Clock signal output for shift registers, character generator and calendar IC.
3	DATAOUT	O	Data output for shift registers and character generator.
4	SDA	I/O	Data input/output for calendar IC.
5	STB1	O	Strobe signal for camera control.
6	STB2	O	Strobe signal for LED display.
7	UEX	I	Under exposure signal input from camera.
8	PCFRST	O	Reset signal for PCF8535 (Calendar IC).
9	EFFP	O	Quasi V sync output while test picture is on.
10	RESET		Reset signal input.
11	RXD	I	Serial data transfer input from syscon microprocessor.
12	NC-2		
13	TXD	O	Serial data transfer output for syscon microprocessor.
14	REMOTE	I	Remote control serial data input.
15	VSYNC	I	Vertical sync. input.
16	FLP	I	Horizontal sync. input to make AESEG.
17	COUNT1	I	ACD data input.
18	DISCHARGE	O	Capacitor discharge signal for ADC.
19	STB3	O	Strobe signal for character generator.
20	XTAL2		12 MHz clock
21	XTAL1		
22	Vss	GND	
23	NC-3		
24	POWER	I	Power on/off switch input.
25	EJECT	I	Eject switch input.
26	TALLY	O	Tally lamp on/off control output.
27	BAT	I	Lithium battery exhaustion detect input.
28	AESEG	O	AE segment signal for AE detection area.
29	—	—	
30	EMERGENCY	I	Emergency signal input such as circuit short.
31	EXT IN	I	External video signal input.
32	PSEN		
33	ALE		
34	NC-4		
35	EA		
36	CPON	O	Camera power on/off control output.
37	TESTPON	O	Test picture on/off output.
38	POWERON	O	Main power on/off control.
39	AUTO	O	Focus manual/auto select control output.
40	WINDOW	O	Auto focus window size large/small select control output.
41	SWC	O	Multiplexer switching control.
42	SWB	O	
43	SWA	O	
44 +5 V	VCC		

SAD1009 (UDAC)

Pin No.	Symbol
1	ASDO
2	MSP
3	LOADING
4	S/L
5	400Hz
6	CREV
7	PPW3
8	PPW4
9	CAP
10	IRIS
11	FADER
12	Vss
13	FOSC
14	ILED
15	RAV
16	MTA
17	MTAL
18	TXD
19	RXD
20	R/O
21	FG2D
22	—
23	UNLOADING
24	Vdd

XI. INFORMATION OF ICs

CV5203/CV5234 SYSCON SERVO μ-CON

Pin No.	Symbol	I/O	Description
1	NC-1		Not used
2	MUXD	I	Analogue multiplexer data input
3	FG	I	Drum FG input
4	—	—	
5	IMEHO	O	Full track erase head on/off control
6	WTALD	I	Supply reel pulse input
7	WTARD	I	Take up reel pulse input
8	S/L	O	Shift/Latch control for UDAC (SAD1009)
9	R/O	I/O	Read/write control for UDAC (SAD1009)
10	RESET	I	Reset input
11	RXD	I	Serial data input from INDICATOR microprocessor and UDAC (SAD1009)
12	NC-2		
13	TXD	O	Serial data output for INDICATOR microprocessor and UDAC (SAD1009)
14	SYNC	I/O	CTL signal
15	FRP	I	Frame pulse (V Sync)
16	FG2D	I	Capstan FG input
17	A/D CON	I	ADC pulse count input
18	DISCHARGE	I	Initialize signal for DAC
19	W/R	O	Read/write control of the CTL signal
20	XTAL 2		12 MHz clock
21	XTAL 1		
22	Vss		GND
23	NC-3		
24	SEL 0	O	Analogue multiplexer channel select
25	SEL 1	O	Signal
26	SWC	I	Mechanism mode sensor input
27	SWB	I	
28	SWA	I	
29	—	—	
30	IRAL	O	Linear audio recording control
31	IPAL	O	Linear audio playback control
32	PSEN	O	
33	ALE	O	
34	NC-4		
35	EA	I	
36	PAV	O	Video/HiFi audio playback control
37	IRAF	O	HiFi audio recording control
38	INDV	O	V sync for INDICATOR microprocessor
39	PG	I	Drum PG input
40	FEHO	O	Flying erase head control
41	HP1	O	Head switching pulse
42	IRRV	O	Video recorging control
43	IFFP	O	Quase V sync for trick playback
44		Vcc	+5 V

CV5222/CV5233 INDICATOR μ-CON

Pin No.	Symbol	I/O	Description
1	NC-1		
2	CLOCK	O	Clock signal output for shift registers, character generator and calendar IC.
3	DATAOUT	O	Data output for shift registers and character generator.
4	SDA	I/O	Data input/output for calendar IC.
5	STB1	O	Strobe signal for camera control.
6	STB2	O	Strobe signal for LED display.
7	UEX	I	Under exposure signal input from camera.
8	PCFRST	O	Reset signal for PCF8535 (Calendar IC).
9	EFFP	O	Quasi V sync output while test picture is on.
10	RESET		Reset signal input.
11	RXD	I	Serial data transfer input from syscon microprocessor.
12	NC-2		
13	TXD	O	Serial data transfer output for syscon microprocessor.
14	REMOTE	I	Remote control serial data input.
15	VSYNC	I	Vertical sync. input.
16	FLP	I	Horizontal sync. input to make AESEG.
17	COUNT1	I	ACD data input.
18	DISCHARGE	O	Capacitor discharge signal for ADC.
19	STB3	O	Strobe signal for character generator.
20	XTAL2		12 MHz clock
21	XTAL1		
22	Vss	GND	
23	NC-3		
24	POWER	I	Power on/off switch input.
25	EJECT	I	Eject switch input.
26	TALLY	O	Tally lamp on/off control output.
27	BAT	I	Lithium battery exhaustion detect input.
28	AESEG	O	AE segment signal for AE detection area.
29	—	—	
30	EMERGENCY	I	Emergency signal input such as circuit short.
31	EXT IN	I	External video signal input.
32	PSEN		
33	ALE		
34	NC-4		
35	EA		
36	CPON	O	Camera power on/off control output.
37	TESTPON	O	Test picture on/off output.
38	POWERON	O	Main power on/off control.
39	AUTO	O	Focus manual/auto select control output.
40	WINDOW	O	Auto focus window size large/small select control output.
41	SWC	O	Multiplexer switching control.
42	SWB	O	
43	SWA	O	
44 +5 V	VCC		

SAD1009 (UDAC)

Pin No.	Symbol
1	ASDO
2	MSP
3	LOADING
4	S/L
5	400Hz
6	CREV
7	PPW3
8	PPW4
9	CAP
10	IRIS
11	FADER
12	Vss
13	FOSC
14	ILED
15	RAV
16	MTA
17	MTAL
18	TXD
19	RXD
20	R/O
21	FG2D
22	—
23	UNLOADING
24	Vdd

DAC (SAD1009)

AC (SAD1009)

CV5222/CV5233 INDICATOR μ-CON

Pin No.	Symbol	I/O	Description
1	NC-1		
2	CLOCK	O	Clock signal output for shift registers, character generator and calendar IC.
3	DATAOUT	O	Data output for shift registers and character generator.
4	SDA	I/O	Data input/output for calendar IC.
5	STB1	O	Strobe signal for camera control.
6	STB2	O	Strobe signal for LED display.
7	UEX	I	Under exposure signal input from camera.
8	PCFRST	O	Reset signal for PCF8535 (Calendar IC).
9	EFFP	O	Quasi V sync output while test picture is on.
10	RESET		Reset signal input.
11	RXD	I	Serial data transfer input from syscon microprocessor.
12	NC-2		
13	TXD	O	Serial data transfer output for syscon microprocessor.
14	REMOTE	I	Remote control serial data input.
15	VSYNC	I	Vertical sync. input.
16	FLP	I	Horizontal sync. input to make AESEG.
17	COUNT1	I	ACD data input.
18	DISCHARGE	O	Capacitor discharge signal for ADC.
19	STB3	O	Strobe signal for character generator.
20	XTAL2		12 MHz clock
21	XTAL1		
22	Vss	GND	
23	NC-3		
24	POWER	I	Power on/off switch input.
25	EJECT	I	Eject switch input.
26	TALLY	O	Tally lamp on/off control output.
27	BAT	I	Lithium battery exhaustion detect input.
28	AESEG	O	AE segment signal for AE detection area.
29	—	—	
30	EMERGENCY	I	Emergency signal input such as circuit short.
31	EXT IN	I	External video signal input.
32	PSEN		
33	ALE		
34	NC-4		
35	EA		
36	CPON	O	Camera power on/off control output.
37	TESTPON	O	Test picture on/off output.
38	POWERON	O	Main power on/off control.
39	AUTO	O	Focus manual/auto select control output.
40	WINDOW	O	Auto focus window size large/small select control output.
41	SWC	O	Multiplexer switching control.
42	SWB	O	
43	SWA	O	
44 +5 V	VCC		

SAD1009 (UDAC)

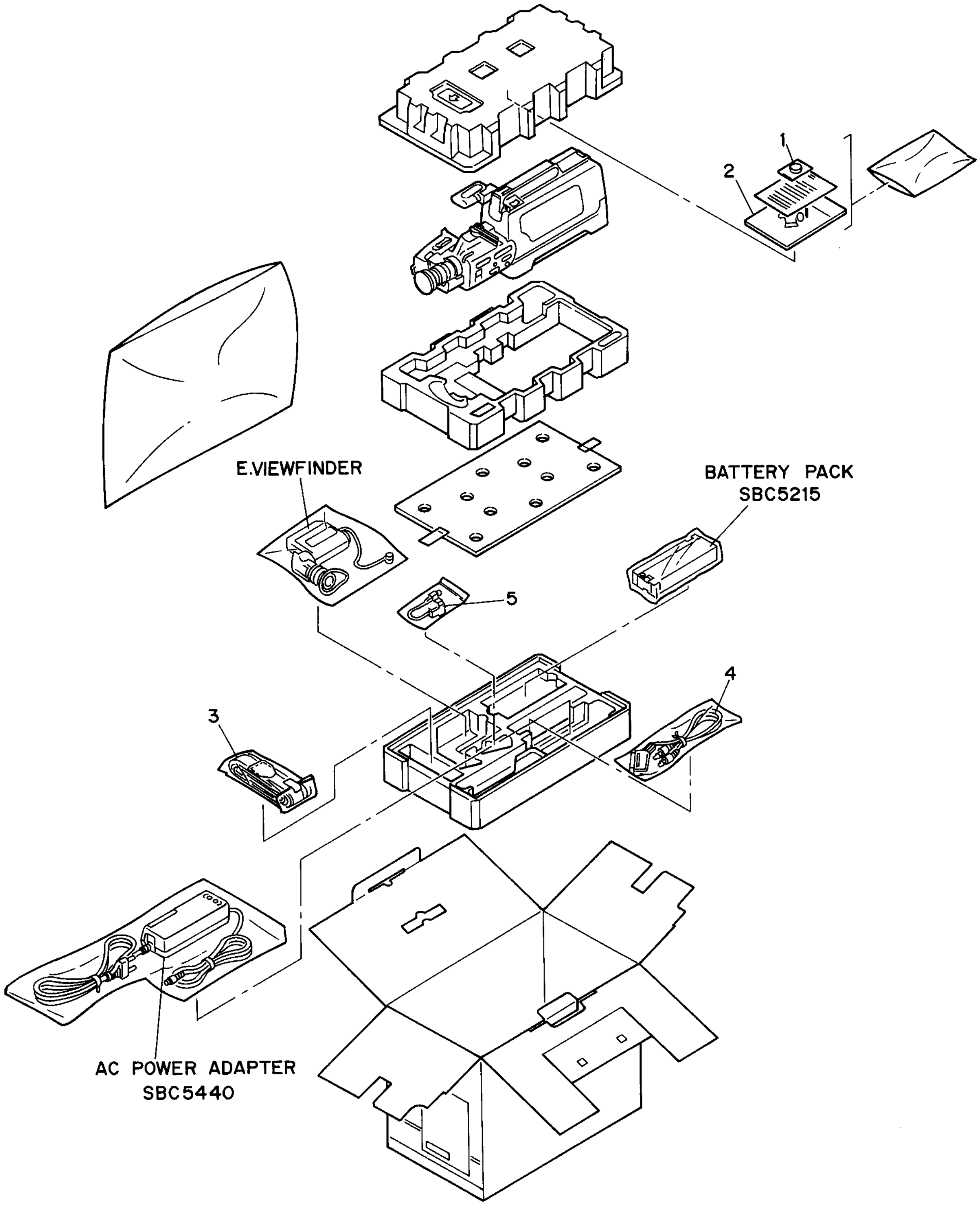
Pin No.	Symbol	I/O	Description
1	ASDO	O	Audio dubbing mode control
2	MSP	O	Trick playback mode
3	LOADING	O	Loading motor control ("H" = Loading)
4	S/L	I	Shift/latch control input
5	400Hz	O	ADC pulse
6	CREV	O	Capstan stop and direction control
7	PPW3	O	Drum motor control
8	PPW4	O	
9	CAP	O	Capstan motor control
10	IRIS	O	Iris control
11	FADER	O	Fade in/out control
12	Vss	GND	
13	FOSC	I	12 MHz clock pulse input
14	ILED	O	LED for start/end sensor on/off control
15	RAV	O	Record mode control for HEAD AMP
16	MTA	O	Mute control for HiFi audio
17	MTAL	O	Mute control for linear audio
18	TXD	O	Serial data transfer output
19	RXD	I	Serial data transfer input
20	R/O	I/O	Read/write control
21	FG2D	I	Capstan FG input
22	—	—	
23	UNLOADING	O	Loading motor control ("H" = Unloading)
24	Vdd		+5 V

XII. EXPLODED VIEWS AND PARTS LIST

12-1. PACKING ASSEMBLY

SAFTY PRECAUTION

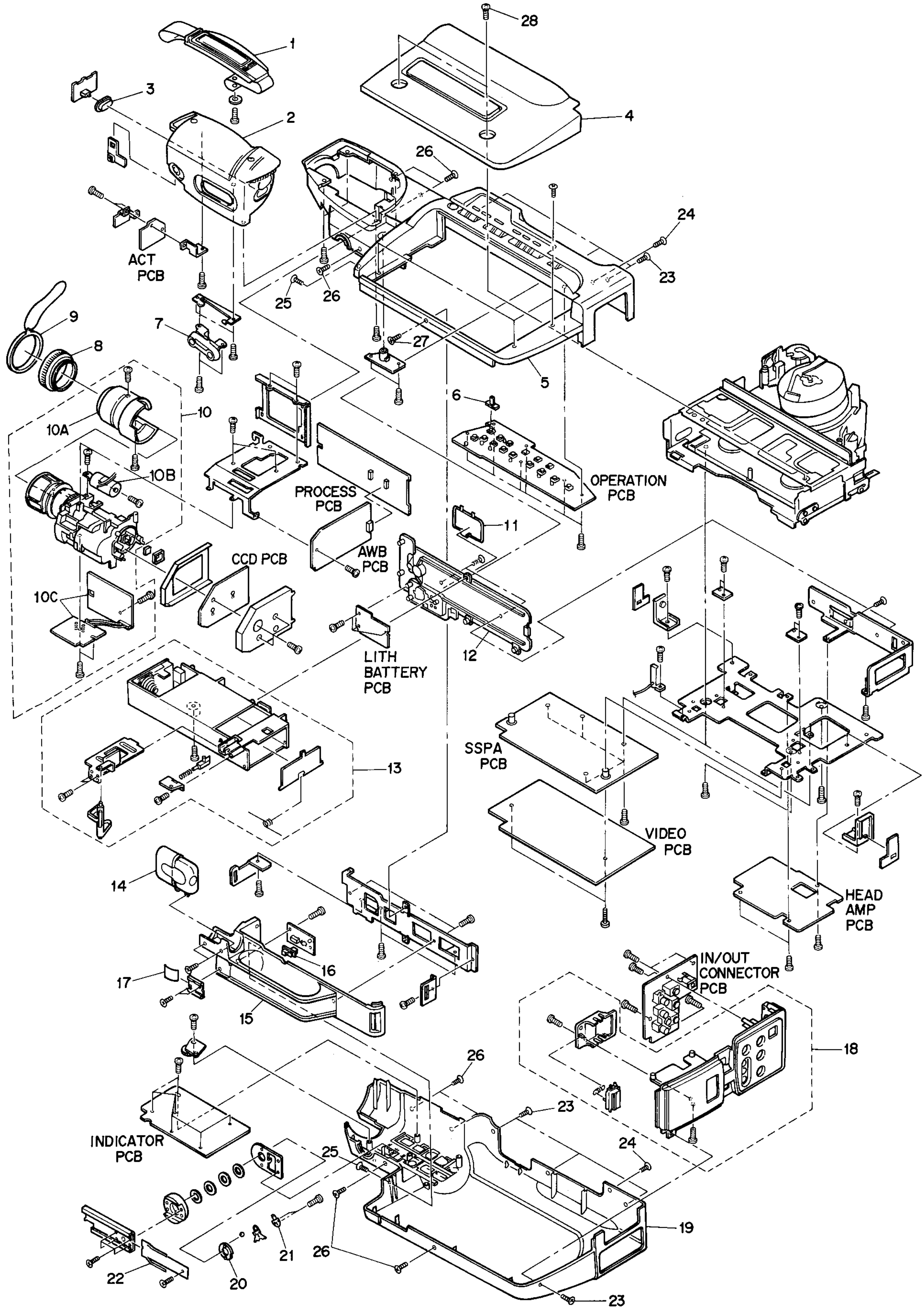
Parts identified by the * symbol are critical for safety.
Replace only with specified part numbers.


1
2
E.VIEWFINDER
BATTERY PACK
SBC5215
5
4
3
AC POWER ADAPTER
SBC5440

PAKING ASSEMBLY

Pos.	Parts code	Description
1	4822 138 10455	LICH BATT CR2032
*2	4822 736 52546	USER MANUAL VKR6860/20/21
*2	4822 736 52545	USER MANUAL 68VKR60/28
3	4822 498 40578	CARRYING STRAP
4	4822 321 61318	A/V CABLE
5	4822 321 61317	CHARGING ADAPTOR

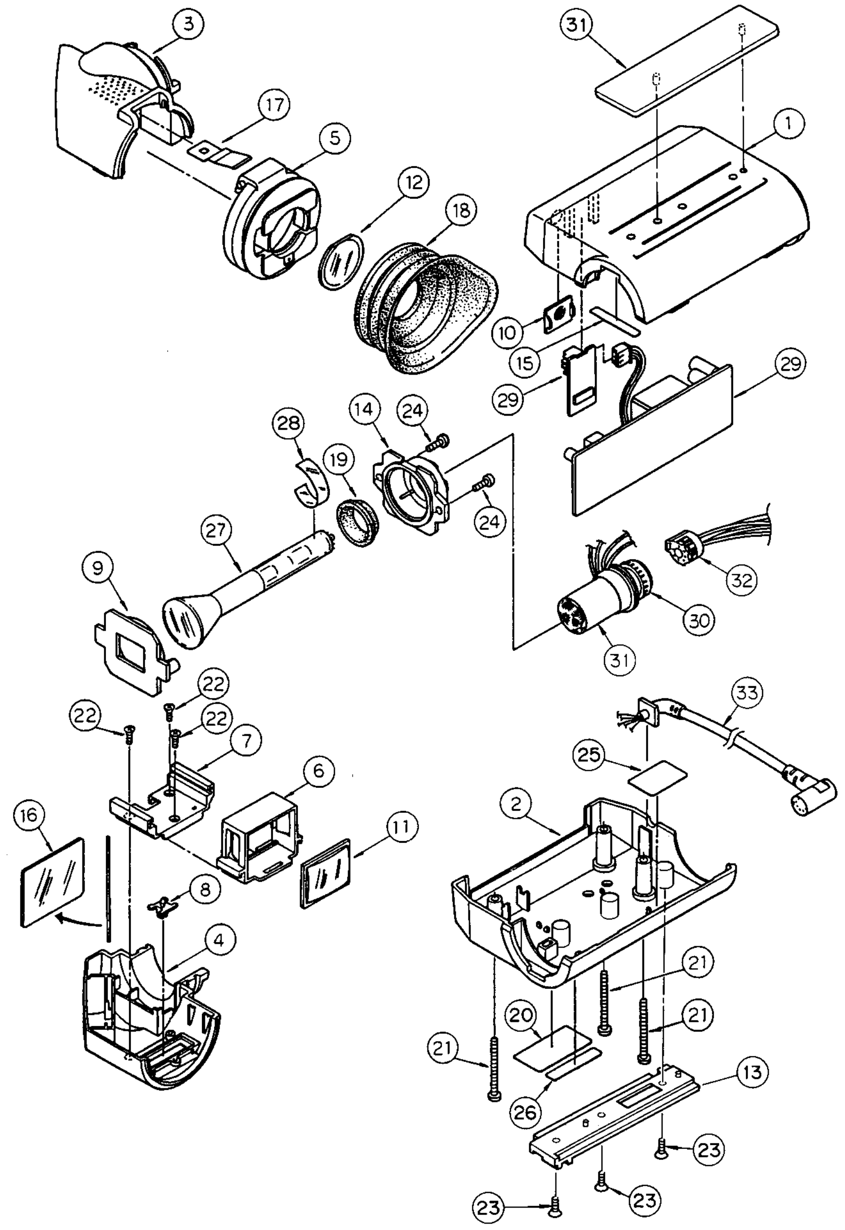
12-2. CABINET ASSEMBLY


28
1
3
4
2
26
24
ACT
PCB
23
25
26
9
7
8
27
5
10
10A
6
10B
OPERATION
PCB
PROCESS
PCB
11
AWB
PCB
CCD PCB
10C
LITH
BATTERY
PCB
12
SSPA
PCB
13
VIDEO
PCB
14
HEAD
AMP
PCB
16
IN/OUT
CONNECTOR
PCB
17
15
18
26
23
INDICATOR
PCB
24
25
19
21
26
22
20
23

CABINET ASSEMBLY

Pos.	Parts code	Description
1	4822 498 40569	HAND STRAP /20/21
1	4822 498 40571	HAND STRAP /28
2	4822 432 60573	CASE HANDGRIP ASSY
3	4822 410 61468	BUTTON TRIGGER
4	4822 432 60574	CASSETTE COVER ASSY /20/21
4	4822 432 60566	CASSETTE COVER ASSY /28
5	4822 432 60582	R-CASE ASSY
6	4822 413 31669	KNOB EDIT
7	4822 276 13137	ZOOM SWITCH
8	4822 432 60571	SUN HOOD
9	4822 462 71782	LENS CAP ASSY
10	4822 691 20692	LENS BLOCK
10A	4822 443 41037	FRONT COVER
10B	4822 361 30362	ZOOM MOTOR
10C	4822 214 33385	AF/ETF PCB ASSY
11	4822 432 60569	COVER BATTERY
12	4822 432 60575	COVER TRIPOD ASSY
13	4822 432 60572	CASE BATTERY ASSY
14	4822 242 30244	MIC UNIT
15	4822 498 40579	HANDLE ASSY
16	4822 411 61832	KNOB POWER
17	4822 492 70819	SP SHOE
18	4822 432 60583	REAR PANEL ASSY(B) /21/28
18	4822 432 60568	REAR PANEL ASSY(B) /20
19	4822 432 60581	L-CASE ASSY /20/21
19	4822 432 60567	L-CASE ASSY /28
20	4822 466 82863	ROTOR BASE
21	4822 403 70465	BLACKET ROTATION (A)
22	4822 492 70958	SPRING EVF
23	4822 502 12438	SCREW
24	4822 502 13834	SCREW
25	4822 502 13706	SCREW
26	4822 502 13836	SCREW
27	4822 502 13835	SCREW
28	4822 502 13833	SCREW

12-3. EVF ASSEMBLY

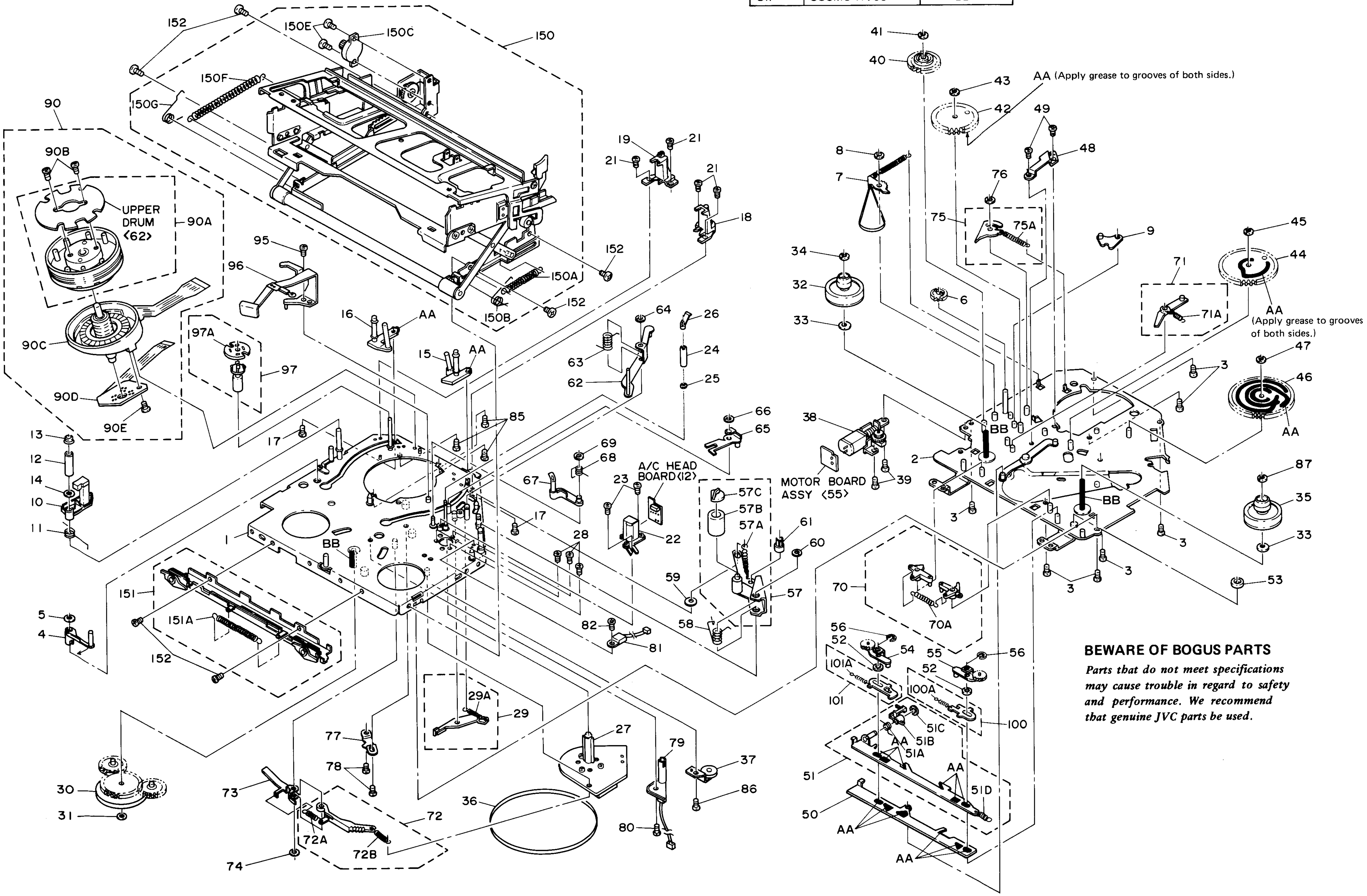


Pos.	Parts code	Description	Pos.	Parts code	Description
1	4822 432 60507	TOP CASE /20/21	15	4822 492 70815	FRICTION SPRING
1	4822 432 60616	TOP CASE /28	16	4822 380 30282	MIRROR
2	4822 432 60578	BOTTOM CASE	17	4822 492 70959	EYE CAP SPRING
3	4822 432 60509	CRT TOP CASE	18	4822 462 71723	EYE CAP
4	4822 432 60579	CRT BOTTOM CASE	19	4822 532 52296	CRT HOLDER RUBBER
5	4822 256 91739	EYE CAP HOLDER	21	4822 502 30291	SCREW
6	4822 256 91741	LENS HOLDER	22	4822 502 13703	SCREW
7	4822 530 70578	LENS HOLDER GUIDE	23	4822 502 30531	SCREW
8	4822 403 70202	EYESIGHT ADJ LEVER	24	4822 502 12386	SCREW
9	4822 432 60512	CRT MASK	27	4822 131 20431	CRT
10	4822 459 40685	LED COVER	29	4822 214 33397	PCB ASSY
11	4822 381 11216	LENS (1)	31	4822 150 10304	DEF. YORK KY1045P
12	4822 381 11217	LENS (2)	32	4822 321 61009	CRT CABLE
13	4822 530 70579	SHOE	33	4822 321 61014	VF CABLE
14	4822 256 91742	CRT HOLDER			

12-4. MECANICAL ASSEMBLY

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.



152
150E
150C
150
150F
150G
90
90B
UPPER DRUM <62>
90A
90C
90D
90E
150A
150B
152
95
96
16
AA
15
AA
97A
97
13
12
14
10
11
17
85
19
21
21
21
18
64
26
63
62
24
25
66
65
69
68
67
23
A/C HEAD BOARD(12)
22
17
28
57C
57B
57A
61
60
59
57
58
82
81
1
BB
151
151A
152
5
4
41
40
43
42
AA (Apply grease to grooves of both sides.)
49
48
8
7
76
75
75A
9
45
44
71
71A
AA (Apply grease to grooves of both sides.)
47
46
AA
34
32
6
33
38
BB
2
BB
MOTOR BOARD ASSY <55>
39
87
35
33
3
3
3
3
3
3
53
70
70A
56
52
54
55
56
52
101A
101
100A
100
51C
51B
51A
AA
AA
51D
51
50
AA
AA
29A
29
27
79
37
86
80
36
77
78
73
72
72A
72B
74
30
31

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

MECHANICAL ASSEMBLY

Pos.	Parts code	Description
4	4822 403 70399	TENSION ARM ASSY
5	4822 532 11553	SLIT WASHER
6	4822 522 33086	S. TRANS GEAR
7	4822 403 70401	S.T. ARM ASSY
8	4822 532 52345	SLIT WASHFR
9	4822 403 70402	T. ARM CANCELER
10	4822 249 40279	FE HEAD ASSY
11	4822 492 42547	TORSION SPRING
12	4822 528 70748	TAPE GUIDE
15	4822 403 70403	P. BASE(T) ASSY
16	4822 403 70404	P. BASE(S) ASSY
22	4822 249 10441	AC HEAD ARM ASSY
24	4822 528 70748	TAPE GUIDE
27	4822 361 30353	CAPSTAN MOTOR
29	4822 403 70405	CAPSTAN BRAKE ASSY
30	4822 522 33088	IDLER GEAR UNIT
31	4822 532 52346	SLIT WASHER
32	4822 528 10822	REEL DISK ASSY(S)
35	4822 528 10823	REEL DISK ASSY(T)
36	4822 358 31135	BELT
37	4822 528 40339	T. PULLEY ASSY
38	4822 361 30354	MODE MOTOR ASSY
40	4822 522 33087	MODE GEAR 2
41	4822 532 11552	SLIT WASHER
42	4822 522 33085	CONTROL CAM 1
44	4822 522 33084	CONTROL CAM 2-2
46	4822 528 30399	MODE SENSOR
48	4822 403 70419	BRACKET
50	4822 403 70397	F/R PLATE
51	4822 403 70406	S. PLATE ASSY
54	4822 403 70407	R.G. ARM(S) ASSY
55	4822 403 70408	R.G. ARM(T) ASSY
57	4822 403 70409	PINCH ROLLER ARM ASSY
57B	4822 403 70398	PINCH ROLLER ASSY
58	4822 492 42551	TOR. SPRING(P.R)
61	4822 122 90102	CAPACITOR
62	4822 403 70411	GUIDE ARM ASSY
63	4822 492 42548	TORSION SPRING
65	4822 403 70412	CAM LEVER 2 ASSY
67	4822 403 70413	H.L. ARM ASSY
68	4822 492 42549	TORSION SPRING
69	4822 532 52344	SLIT WASHER
70	4822 403 70414	M. BRAKE ASSY
71	4822 403 70415	S. BRAKE (S) ASSY
72	4822 403 70416	S. BRAKE (T) ASSY
73	4822 403 70418	SEARCH BRAKE LEVER
75	4822 403 70417	P.B. LEVER ASSY
79	4822 255 41222	LED HOLDER
81	4822 466 92453	DEW SENSOR
90	4822 691 20677	DRUM ASSY
90A	4822 691 20675	UPPER DRUM ASSY
*90C	4822 691 20676	LOWER DRUM M. ASSY
96	4822 479 30142	BRUSH ASSY
97	4822 528 70747	ID ROLLER ASSY
150	4822 691 20678	HOUSING ASSY
151	4822 417 50268	LOCK ASSY

12-5. ELECTRICAL PARTS LIST

SAFETY PRECAUTION
Parts identified by the * symbol are critical for safety.
Replace only with specified part numbers.

Notes
All resistors are in ohms and 1/16W.
All capacitors are in Farads.

Pos.	Parts code	Description
CCD PCB ASSEMBLY		
C001	4822 126 11687	C CAP. 0.1U 16V
C002	4822 124 11225	T CAP. 2.2U 16V
C003	4822 124 11074	E CAP. 10U 16V
C004	4822 126 11687	C CAP. 0.1U 16V
C005	4822 126 11565	C CAP. 0.01U 25V
C006	4822 126 11687	C CAP. 0.1U 16V
C007,08	4822 126 11688	C CAP. 0.047U 50V
C009-11	4822 126 11687	C CAP. 0.1U 16V
C012	4822 122 33775	C CAP. 39P 50V
C013-20	4822 126 11565	C CAP. 0.01U 25V
C021	4822 124 41842	E CAP. 47U 16V
C022	4822 122 33752	C CAP. 15P 50V
C023	4822 126 11687	C CAP. 0.1U 16V
C024	4822 122 33752	C CAP. 15P 50V
C025	4822 126 11661	C CAP. 5P 50V
C026	4822 122 33752	C CAP. 15P 50V
C027,28	4822 124 11228	T CAP. 22U 10V
C029,30	4822 122 33782	C CAP. 56P 50V
C031	4822 126 11687	C CAP. 0.1U 16V
C032,33	4822 122 33782	C CAP. 56P 50V
C034,35	4822 126 11687	C CAP. 0.1U 16V
C036,37	4822 122 33752	C CAP. 15P 50V
C038	4822 126 11687	C CAP. 0.1U 16V
C039	4822 124 11228	T CAP. 22U 10V
C040	4822 122 33752	C CAP. 15P 50V
C041	4822 126 11687	C CAP. 0.1U 16V
C042	4822 124 41839	T CAP. 10U 6.3V
C043	4822 124 11226	E CAP. 22U 6.3V
C044	4822 126 11687	C CAP. 0.1U 16V
C045	4822 124 11074	E CAP. 10U 16V
C046	4822 126 11687	C CAP. 0.1U 16V
C047	4822 124 11074	E CAP. 10U 16V
C048	4822 122 33775	C CAP. 39P 50V
C049	4822 126 11671	C CAP. 33P 50V
C050	4822 126 11687	C CAP. 0.1U 16V
C051,52	4822 126 11562	C CAP. 100P 50V
C053,54	4822 126 11687	C CAP. 0.1U 16V
D001	4822 130 80727	DIODE MA110
D002	4822 130 80732	DIODE MA728
D003,04	4822 130 80727	DIODE MA110
D005	4822 130 80732	DIODE MA728
D006-10	4822 130 80727	DIODE MA110
F001	4822 153 70034	LC FILTER
L001-06	4822 157 60178	COIL 15U
Q001	4822 130 61079	TR 2SC3930
Q002	4822 130 61084	TR 2SD1819
Q003	4822 130 62807	TR 2SA1739
Q004	4822 130 61082	TR 2SC3938
Q005	4822 130 62807	TR 2SA1739
Q006	4822 130 61082	TR 2SC3938
Q007	4822 130 62807	TR 2SA1739
Q008	4822 130 61082	TR 2SC3938
Q009,10	4822 130 61084	TR 2SD1819
R001	4822 051 30102	RES. 1K
R002	4822 051 30479	RES. 47
R003	4822 051 30682	RES. 6.8K
R004	4822 051 30222	RES. 2.2K
R005	4822 051 30223	RES. 22K
R006	4822 051 30332	RES. 3.3K
R007	4822 051 30229	RES. 22
R008	4822 051 30331	RES. 330
R009	4822 051 30101	RES. 100
R010	4822 051 30479	RES. 47
R011	4822 051 30101	RES. 100
R012	4822 051 30103	RES. 10K
R013	4822 051 30153	RES. 15K
R014-18	4822 051 30222	RES. 2.2K
R019	4822 051 30101	RES. 100
R020,21	4822 051 30102	RES. 1K
R022	4822 051 30331	RES. 330
R023,24	4822 051 30101	RES. 100
R025	4822 051 30222	RES. 2.2K
R026	4822 051 30101	RES. 100
R027-29	4822 051 30222	RES. 2.2K
R030-33	4822 051 30152	RES. 1.5K
R034,35	4822 051 30109	RES. 10
R036	4822 051 30221	RES. 220
R037,38	4822 051 30223	RES. 22K
R039,40	4822 051 30103	RES. 10K
R041	4822 051 30683	RES. 68K
R042-45	4822 051 30109	RES. 10
U001	4822 209 30275	IC MN3762FS
U002,03	4822 209 63776	IC MN3110SA
U004	4822 209 30274	IC MN5137
U005	4822 209 61961	IC AN2012S
V001	4822 125 60176	V CAP. 10P
X001	4822 242 80343	X-TAL 27MHZ
PROCESS PCB ASSEMBLY		
C101,02	4822 124 11225	T CAP. 2.2U 16V
C103	4822 126 11687	C CAP. 0.1U 16V
C104	4822 126 11681	C CAP. 1000P 50V
C105	4822 124 11225	T CAP. 2.2U 16V
C106	4822 126 11677	C CAP. 1U 16V
C107,08	4822 126 11565	C CAP. 0.01U 25V
C109	4822 124 11226	E CAP. 22U 6.3V
C111	4822 122 33782	C CAP. 56P 50V
C112	4822 126 11687	C CAP. 0.1U 16V
C113	4822 122 33757	C CAP. 18P 50V
C114	4822 122 33782	C CAP. 56P 50V
C115	4822 126 11677	C CAP. 1U 16V
C116	4822 126 11681	C CAP. 1000P 50V
C117,18	4822 124 11225	T CAP. 2.2U 16V
C119	4822 126 11687	C CAP. 0.1U 16V
C120	4822 122 33775	C CAP. 39P 50V
C122,23	4822 126 11687	C CAP. 0.1U 16V
C124	4822 126 11677	C CAP. 1U 16V
C125	4822 126 11565	C CAP. 0.01U 25V
C126	4822 126 11677	C CAP. 1U 16V

Pos.	Parts code	Description
C127	4822 126 11565	C CAP. 0.01U 25V
C128	4822 126 11687	C CAP. 0.1U 16V
C129	4822 122 33775	C CAP. 39P 50V
C130	4822 126 11687	C CAP. 0.1U 16V
C131	4822 122 33775	C CAP. 39P 50V
C132	4822 126 11687	C CAP. 0.1U 16V
C133	4822 124 11227	T CAP. 22U 6.3V
C134	4822 126 11687	C CAP. 0.1U 16V
C135	4822 124 11074	E CAP. 10U 16V
C136,37	4822 126 11688	C CAP. 0.047U 50V
C138	4822 126 11565	C CAP. 0.01U 25V
C139	4822 126 11677	C CAP. 1U 16V
C140	4822 124 11074	E CAP. 10U 16V
C141	4822 124 11227	T CAP. 22U 6.3V
C142	4822 126 11682	C CAP. 220P 50V
C143,44	4822 126 11687	C CAP. 0.1U 16V
C145	4822 126 11688	C CAP. 0.047U 50V
C146,47	4822 126 11687	C CAP. 0.1U 16V
C148	4822 126 11688	C CAP. 0.047U 50V
C149,50	4822 126 11687	C CAP. 0.1U 16V
C151-53	4822 126 11688	C CAP. 0.047U 50V
C154	4822 126 11562	C CAP. 100P 50V
C155-59	4822 126 11565	C CAP. 0.01U 25V
C160	4822 126 11687	C CAP. 0.1U 25V
C161	4822 126 11671	C CAP. 33P 50V
C162	4822 126 11687	C CAP. 0.1U 16V
C163	4822 126 11669	C CAP. 27P 50V
C164	4822 126 11687	C CAP. 0.1U 16V
C165	4822 126 11688	C CAP. 0.047U 50V
C166	4822 126 11687	C CAP. 0.1U 16V
C167,68	4822 126 11677	C CAP. 1U 16V
C169	4822 126 11688	C CAP. 0.047U 50V
C170	4822 126 11677	C CAP. 1U 16V
C201	4822 124 11226	E CAP 22U 6.3V
C202,03	4822 122 33752	C CAP. 15P 50V
C204	4822 126 11687	C CAP. 0.1U 16V
C205	4822 126 11679	C CAP. 0.22U 25V
C206	4822 126 11669	C CAP. 27P 50V
C207	4822 126 11687	C CAP. 0.1U 16V
C208	4822 126 11565	C CAP. 0.01U 25V
C209	4822 124 11227	T CAP. 22U 6.3V
C210-13	4822 126 11687	C CAP. 0.1U 16V
C214	4822 124 11227	T CAP. 22U 6.3V
C215	4822 126 11677	C CAP. 1U 16V
C216	4822 126 11687	C CAP. 0.1U 16V
C217	4822 124 11074	E CAP. 10U 16V
C218	4822 124 41839	T CAP. 10U 6.3V
C219	4822 126 11687	C CAP. 0.1U 16V
C220-22	4822 126 11565	C CAP. 0.01U 25V
C223	4822 124 11229	E CAP. 4.7U 35V
C224	4822 126 11565	C CAP. 0.01U 25V
C225	4822 126 11687	C CAP. 0.1U 16V
C226	4822 126 11562	C CAP. 100P 50V
C227-29	4822 126 11682	C CAP. 220P 50V
D101,02	4822 130 80727	DIODE MA110
D201,02	4822 130 82713	DIODE MA321
F101	4822 153 70033	FILTER 13.5 MHZ
F102	4822 153 70032	LOW PASS FILTER
F104,05	4822 153 70027	LOW PASS FILTER
F106	4822 153 70026	LOW PASS FILTER
F107	4822 153 70029	LOW PASS FILTER
F108	4822 153 70031	LOW PASS FILTER
F109	4822 320 50231	FILTER
F110	4822 153 70025	FILTER
F201	4822 153 70028	BAND PASS FILTER
L101-03	4822 157 60178	COIL 15U
L105,06	4822 157 60178	COIL 15U
L109	4822 157 60178	COIL 15U
L201	4822 157 60178	COIL 15U
L203	4822 157 60178	COIL 15U
L205	4822 157 60178	COIL 15U
P101-04	4822 100 11791	V RES. 5KB
P105	4822 100 11788	V RES. 100KB
P106-08	4822 100 11792	V RES. 50KB
P109-11	4822 100 11788	V RES. 100KB
P112-14	4822 100 11787	V RES. 1KB
P115	4822 100 11789	V RES. 20KB
P116	4822 100 11792	V RES. 50KB
P201,02	4822 100 11788	V RES. 100KB
P203-05	4822 100 11789	V RES. 20KB
Q101	4822 130 61084	TR 2SD1819
Q102,03	4822 130 60667	TR 2SA1532
Q104	4822 130 61084	TR 2SD1819
Q105	4822 130 61075	TR 2SB1218
Q106	4822 130 61079	TR 2SC3930
Q107	4822 130 61075	TR 2SB1218
Q108-13	4822 130 61084	TR 2SD1819
Q114	4822 130 61082	TR 2SC3938
Q115	4822 130 60667	TR 2SA1532
Q116,17	4822 130 61084	TR 2SD1819
Q202	4822 130 61084	TR 2SD1819
Q204	4822 130 61084	TR 2SD1819
R101,02	4822 051 30222	RES. 2.2K
R103	4822 051 30472	RES. 4.7K
R104	4822 051 30222	RES. 2.2K
R105	4822 051 30102	RES. 1K
R106	4822 051 30222	RES. 2.2K
R107,08	4822 051 30102	RES. 1K
R109	4822 051 30332	RES. 3.3K
R110	4822 051 30101	RES. 100
R111	4822 051 30332	RES. 3.3K
R112	4822 051 30472	RES. 4.7K
R113	4822 051 30152	RES. 1.5K
R114	4822 051 30102	RES. 1K
R115	4822 051 30472	RES. 4.7K
R116	4822 051 30102	RES. 1K
R117,18	4822 051 30222	RES. 2.2K
R119	4822 051 30332	RES. 3.3K
R120	4822 051 30222	RES. 2.2K
R121	4822 051 30109	RES. 10
R122	4822 051 30332	RES. 3.3K
R123	4822 051 30222	RES. 2.2K
R124-26	4822 051 30472	RES. 4.7K
R127	4822 051 30102	RES. 1K
R128	4822 051 30332	RES. 3.3K
R129	4822 051 30473	RES. 47K
R131	4822 051 30152	RES. 1.5K
R132-34	4822 051 30103	RES. 10K
R135	4822 051 30333	RES. 33K
R136	4822 051 30223	RES. 22K
R137	4822 051 30104	RES. 100K
R138,39	4822 051 30472	RES. 4.7K
R140	4822 051 30473	RES. 47K
R141	4822 051 30103	RES. 10K
R142	4822 051 30472	RES. 4.7K
R143	4822 051 30222	RES. 2.2K
R144	4822 051 30104	RES. 100K
R146	4822 051 30103	RES. 10K
R149	4822 051 30102	RES. 1K
R150	4822 051 30103	RES. 10K
R151	4822 051 30222	RES. 2.2K
R152,53	4822 051 30333	RES. 33K
R154-56	4822 051 30102	RES. 1K
R159	4822 051 30223	RES. 22K
R160	4822 051 30333	RES. 33K
R161	4822 051 30473	RES. 47K

Pos.	Parts code	Description
R162	4822 051 30153	RES. 15K
R164	4822 051 30103	RES. 10K
R165	4822 051 30102	RES. 1K
R166	4822 051 30331	RES. 330
R167	4822 051 30684	RES. 680
R168	4822 051 30102	RES. 1K
R169	4822 051 30472	RES. 4.7K
R170-73	4822 051 30102	RES. 1K
R174,75	4822 051 30103	RES. 10K
R178	4822 051 30104	RES. 100K
R179,80	4822 051 30223	RES. 22K
R181	4822 051 30224	RES. 220K
R182-87	4822 051 30103	RES. 10K
R201,02	4822 051 30479	RES. 47
R203	4822 051 30102	RES. 1K
R204	4822 051 30229	RES. 22
R205	4822 051 30222	RES. 2.2K
R206,07	4822 051 30102	RES. 1K
R208	4822 051 30682	RES. 68K
R209	4822 051 30222	RES. 2.2K
R210	4822 051 30229	RES. 22
R211	4822 051 30152	RES. 1.5K
R212	4822 051 30102	RES. 1K
R213	4822 051 30103	RES. 10K
R214	4822 051 30473	RES. 47K
R215	4822 051 30153	RES. 15K
R216	4822 051 30471	RES. 470
R217	4822 051 30153	RES. 15K
R218	4822 051 30472	RES. 4.7K
R219	4822 051 30102	RES. 1K
R220	4822 051 30332	RES. 3.3K
R221,22	4822 051 30103	RES. 10K
R223	4822 051 30332	RES. 3.3K
R224,25	4822 051 30684	RES. 680
R226	4822 051 30103	RES. 10K
R227	4822 051 30472	RES. 4.7K
R228	4822 051 30682	RES. 6.8K
R229	4822 051 30103	RES. 10K
R230	4822 051 30473	RES. 47K
R231	4822 051 30103	RES. 10K
R232	4822 051 30152	RES. 1.5K
R233	4822 051 30222	RES. 2.2K
R234	4822 051 30152	RES. 1.5K
R235,36	4822 051 30222	RES. 2.2K
R237	4822 051 30332	RES. 3.3K
R238	4822 051 30104	RES. 100K
R239	4822 051 30103	RES. 10K
R240	4822 051 30221	RES. 220
R241	4822 051 30103	RES. 10K
R242	4822 051 30333	RES. 33K
R243	4822 051 30104	RES. 100K
R244	4822 051 30474	RES. 470K
U101	4822 209 30273	IC MN3827S
U102	4822 209 62608	IC MN3828S
U103	4822 209 61962	IC AN2154FAP
U104	4822 209 62503	IC HC4053FP
U105	4822 209 63785	IC BA10358F
U201	4822 209 61963	IC AN2254FAP
U202	4822 209 30287	IC MN5150
X201	4822 242 80345	X-TAL 17.734475MHZ

AWB PCB ASSEMBLY

Pos.	Parts code	Description
C301-04	4822 126 11687	C CAP. 0.1U 16V
C305	4822 124 11074	E CAP. 10U 16V
C306-08	4822 126 11687	C CAP. 0.1U 16V
C309	4822 124 11226	E CAP. 22U 16V
C310	4822 124 11074	E CAP. 10U 16V
C401	4822 124 11074	E CAP. 10U 16V
C402	4822 126 11677	C CAP. 1U 16V
C403	4822 126 11688	C CAP. 0.047 50V
C404,05	4822 124 11229	E CAP. 4.7U 35V
C406-08	4822 126 11687	C CAP. 0.1U 16V
C409	4822 126 11562	C CAP. 100P 50V
C501	4822 124 41842	E CAP. 47U 16V
D301-04	4822 130 80727	DIODE MA110
D401,02	4822 130 80727	DIODE MA110
L301	4822 157 60178	COIL 15U
L401	4822 157 60178	COIL 15U
P301	4822 100 11789	V RES. 20KB
P302,03	4822 100 11792	V RES. 50KB
P304-12	4822 100 11789	V RES. 20KB
P401	4822 100 11789	V RES. 20KB
Q301	4822 130 61075	TR 2SB1218
Q302	4822 130 61084	TR 2SD1819
Q303	4822 130 61075	TR 2SB1218
Q304,05	4822 130 61084	TR 2SD1819
Q306	4822 130 61075	TR 2SB1218
Q307,08	4822 130 61084	TR 2SD1819
Q401	4822 130 61084	TR 2SD1819
Q501-04	4822 130 61084	TR 2SD1819
Q505	4822 130 42664	TR 2SB970
Q506	4822 130 61084	TR 2SD1819
R301	4822 051 30473	RES. 47K
R302	4822 051 30153	RES. 15K
R303	4822 051 30333	RES. 33K
R304,05	4822 051 30103	RES. 10K
R306	4822 051 30153	RES. 15K
R307	4822 051 30103	RES. 10K
R308	4822 051 30153	RES. 15K
R309	4822 051 30333	RES. 33K
R310	4822 051 30473	RES. 47K
R311	4822 051 30102	RES. 1K
R312	4822 051 30334	RES. 330K
R313	4822 051 30102	RES. 1K
R314,15	4822 051 30473	RES. 47K
R316,17	4822 051 30334	RES. 330K
R318,19	4822 051 30474	RES. 470K
R320	4822 051 30473	RES. 47K
R321	4822 051 30334	RES. 330K
R322	4822 116 83205	RES. 10M 1/10W
R323	4822 051 30102	RES. 1K
R324	4822 051 30473	RES. 47K
R325,26	4822 051 30224	RES. 220K
R327	4822 051 30104	RES. 100K
R328	4822 051 30102	RES. 1K
R329	4822 051 30222	RES. 2.2K
R330	4822 051 30682	RES. 6.8K
R331	4822 051 30103	RES. 10K
R332	4822 051 30334	RES. 330K
R333,34	4822 051 30104	RES. 100K
R335,36	4822 051 30224	RES. 220K
R337	4822 051 30103	RES. 10K
R338,39	4822 051 30333	RES. 33K
R340-43	4822 051 30103	RES. 10K
R344	4822 051 30104	RES. 100K
R345	4822 051 30103	RES. 10K
R346	4822 051 30104	RES. 100K
R347	4822 051 30103	RES. 10K
R348	4822 051 30154	RES. 150K
R349	4822 051 30223	RES. 22K
R350	4822 051 30154	RES. 150K
R351,52	4822 051 30103	RES. 10K
R353,54	4822 116 82589	RES. 3.3M 1/10W
R355	4822 051 30334	RES. 330K
R356	4822 051 30223	RES. 22K
R357	4822 051 30104	RES. 100K

Pos.	Parts code	Description
R358,59	4822 051 30102	RES. 1K
R360	4822 051 30103	RES. 10K
R361	4822 051 30153	RES. 15K
R362	4822 116 83205	RES. 10M 1/10W
R363	4822 051 30104	RES. 100K
R364	4822 051 30682	RES. 6.8K
R365	4822 051 30222	RES. 2.2K
R366	4822 051 30104	RES. 100K
R367	4822 051 30103	RES. 10K
R368,69	4822 051 30104	RES. 100K
R370	4822 051 30153	RES. 15K
R371	4822 051 30103	RES. 10K
R372	4822 051 30333	RES. 33K
R373	4822 051 30153	RES. 15K
R374	4822 051 30473	RES. 47K
R375	4822 051 30103	RES. 10K
R376	4822 051 30104	RES. 100K
R377	4822 051 30103	RES. 10K
R378	4822 051 30104	RES. 100K
R379,80	4822 051 30102	RES. 1K
R401	4822 051 30102	RES. 1K
R402	4822 051 30104	RES. 100K
R403	4822 051 30472	RES. 4.7K
R404	4822 051 30102	RES. 1K
R405	4822 051 30154	RES. 150K
R406	4822 051 30104	RES. 100K
R407	4822 051 30683	RES. 68K
R408	4822 051 30224	RES. 220K
R409	4822 051 30152	RES. 1.5K
R410,11	4822 051 30333	RES. 33K
R412	4822 051 30153	RES. 15K
R413	4822 051 30682	RES. 6.8K
R414	4822 051 30683	RES. 68K
R415	4822 051 30102	RES. 1K
R416	4822 051 30103	RES. 10K
R417	4822 051 30472	RES. 4.7K
R418	4822 051 30109	RES. 10
R419	4822 051 30472	RES. 4.7K
R420,21	4822 051 30223	RES. 22K
R501-03	4822 051 30222	RES. 2.2K
R504,05	4822 051 30472	RES. 4.7K
R506	4822 051 30229	RES. 22
R507	4822 051 30153	RES. 15K
R508	4822 051 30223	RES. 22K
U301	4822 209 30292	IC 4052FP
U302-03	4822 209 60635	IC BA10324F
U401	4822 209 63383	IC 4066
U402	4822 209 60635	IC BA10324F
U701	4822 209 30276	IC BU4094FP

ACT PCB ASSEMBLY

Pos.	Parts code	Description
C801-03	4822 126 11687	C CAP. 0.1U 16V
D801	4822 130 80728	DIODE MA121
R801	4822 051 30472	RES. 4.7K
R802	4822 051 30471	RES. 470
R803	4822 051 30222	RES. 2.2K
R804	4822 116 83228	RES. 120K 1/10W
R805	4822 111 91136	RES. 12K 1/10W
R806	4822 116 83232	RES. 8.2K 1/10W
R807	4822 051 30104	RES. 100K
R808	4822 051 30103	RES. 10K
R809	4822 051 30104	RES. 100K
R810-12	4822 051 30103	RES. 10K
R813	4822 051 30333	RES. 33K
R814	4822 051 30102	RES. 1K
R815,16	4822 051 30103	RES. 10K
R817	4822 051 30101	RES. 100
R818	4822 051 30102	RES. 1K
R819	4822 051 30152	RES. 1.5K
R820	4822 051 30333	RES. 33K
R821	4822 051 30684	RES. 680
R822	4822 051 30151	RES. 150
R823	4822 051 30471	RES. 470
R824	4822 051 30221	RES. 220
U801	4822 209 30288	IC M51096FP
U802	4822 209 60635	IC BA10324FP

MANUAL FOCUS PCB ASSEMBLY

Pos.	Parts code	Description
MF01	4822 100 11793	V RES. FOCUS

SSPA PCB ASSEMBLY

Pos.	Parts code	Description
C214	4822 124 23877	E CAP. 2.2U 35V
C216	4822 124 22725	E CAP. 10U 16V
C301	4822 124 22727	E CAP. 47U 16V
C302	4822 121 43983	F CAP. 0.022U 50V
C303	4822 126 11702	C CAP. 680P 50V
C304	4822 124 23464	E CAP. 1U 50V
C305	4822 126 11668	C CAP. 220P 50V
C306	4822 124 23464	E CAP. 1U 50V
C307	4822 124 22725	E CAP. 10U 16V
C308	4822 126 11696	C CAP. 470P 50V
C309	4822 124 23878	E CAP. 33U 16V
C310	4822 124 23493	E CAP. 22U 16V
C311	4822 124 22727	E CAP. 47U 16V
C312	4822 124 23525	E CAP. 22U 16V
C314	4822 126 11696	C CAP. 470P 50V
C315	4822 126 11697	F CAP. 0.1U 50V
C316	4822 124 22725	E CAP. 10U 16V
C317	4822 126 11696	C CAP. 470P 50V
C318	4822 121 43982	F CAP. 0.015U 50V
C319	4822 126 11687	C CAP. 0.1U 16V
C320	4822 126 11688	C CAP. 0.047U 50V
C321	4822 124 23876	E CAP. 100U 6.3V
C322	4822 126 11687	C CAP. 0.1U 16V
C323	4822 126 11688	C CAP. 0.047U 50V
C324	4822 124 23876	E CAP. 100U 6.3V
C325	4822 126 11699	F CAP. 0.033U 50V
C326	4822 124 23878	E CAP. 33U 16V
C327	4822 124 22727	E CAP. 47U 16V
C328,29	4822 126 11703	C CAP. 0.01U 50V
C330,31	4822 124 22727	E CAP. 47U 16V
C332	4822 126 11703	C CAP. 0.01U 50V
C333	4822 124 22727	E CAP. 47U 16V
C334	4822 126 11703	C CAP. 0.01U 50V
C337	4822 124 23525	E CAP. 22U 16V
C338	4822 124 23878	E CAP. 33U 16V
C339	4822 126 11696	C CAP. 470P 50V
C340-42	4822 124 23879	E CAP. 4.7U 16V
C501	4822 126 11701	F CAP. 4700P 50V
C503	4822 126 11698	F CAP. 0.018U 50V
C506	4822 126 11696	C CAP. 470P 50V
C507	4822 126 11848	C CAP. 0.022U 50V
C508	4822 126 11697	F CAP. 0.1U 50V
C509	4822 126 11698	F CAP. 0.018U 50V
C510	4822 124 22725	E CAP. 10U 16V
C511	4822 124 23877	E CAP. 2.2U 35V
C512	4822 126 11699	F CAP. 0.033U 50V
C513	4822 126 11704	C CAP. 0.022U 50V
C514	4822 121 43985	F CAP. 0.47U 50V
C515	4822 126 11697	F CAP. 0.1U 50V
C516-18	4822 126 11688	C CAP. 0.047U 50V
C519-21	4822 126 11683	C CAP. 3300P 50V
C522	4822 121 43984	F CAP. 0.047U 50V
C523	4822 126 11688	C CAP. 0.0047U 50V
C528,29	4822 126 11564	C CAP. 22P 50V

Pos.	Parts code	Description
C530	4822 126 11681	C CAP. 1000P 50V
C531	4822 126 11695	C CAP. 330P 50V
C532	4822 126 11684	C CAP. 3900P 50V
C533	4822 126 11703	C CAP. 0.01U 50V
C534	4822 121 43986	F CAP. 0.056U 50V
C535-37	4822 124 23883	E CAP. 4.7U 16V
C538	4822 124 22727	E CAP. 47U 16V
C540	4822 124 22725	E CAP. 10U 16V
C541-43	4822 124 23877	E CAP. 2.2U 35V
C544	4822 121 43983	F CAP. 0.022U 50V
C545	4822 124 22727	E CAP. 47U 16V
C546	4822 126 11687	C CAP. 0.1U 16V
C548,49	4822 124 22727	E CAP. 47UF 16V
C550	4822 126 11704	C CAP. 0.022U 50V
C551	4822 124 22727	E CAP. 47U 16V
C552	4822 124 23526	E CAP. 3.3U 25V
C553-55	4822 126 11703	C CAP. 0.01U 50V
C556	4822 124 22727	E CAP. 47U 16V
C557	4822 126 11697	F CAP. 0.1U 50V
C558	4822 124 22725	E CAP. 10U 16V
C559	4822 126 11684	C CAP. 3900P 50V
C560	4822 126 11697	F CAP. 0.1U 50V
C561	4822 124 23877	E CAP. 2.2U 35V
C562	4822 124 22727	E CAP. 47U 16V
C563	4822 124 23875	E CAP. 47U 16V
C564,65	4822 124 22725	E CAP. 10U 16V
C9A0	4822 124 23464	E CAP. 1U 50V
C901	4822 124 22728	E CAP. 100U 16V
C902	4822 124 23879	E CAP. 4.7U 16V
C903	4822 124 23464	E CAP. 1U 50V
C904	4822 126 11703	C CAP. 0.01U 50V
C905	4822 124 23895	E CAP. 56U 16V
C906	4822 124 22725	E CAP. 10U 16V
C907	4822 124 23879	E CAP. 4.7U 16V
C908	4822 126 11703	C CAP. 0.01U 50V
C909	4822 124 22727	E CAP. 47U 16V
C911	4822 124 23464	E CAP. 1U 50V
C913,14	4822 126 11703	C CAP. 0.01U 50V
C916	4822 126 11703	C CAP. 0.01U 50V
C917	4822 124 23464	E CAP. 1U 50V
C919-23	4822 126 11687	C CAP. 0.1U 16V
C924	4822 126 11695	C CAP. 330P 50V
C925	4822 124 23893	E CAP. 27U 35V
C927	4822 126 11566	C CAP. 2200P 50V
C929	4822 126 11724	C CAP. 560P 50V
C930	4822 124 23893	E CAP. 27U 35V
C931	4822 124 22727	E CAP. 47U 16V
C932,33	4822 124 23895	E CAP. 56U 16V
C934	4822 124 23894	E CAP. 39U 25V
C936	4822 126 11703	C CAP. 0.01U 50V
C943,44	4822 124 23895	E CAP. 56U 16V
C946	4822 126 11679	C CAP. 0.22U 50V
C948	4822 126 11679	C CAP. 0.22U 50V
C949	4822 126 11703	C CAP. 0.01U 50V
C951	4822 124 23895	E CAP. 56U 16V
C952	4822 126 11703	C CAP. 0.01U 50V
C953	4822 124 23895	E CAP. 56U 16V
C956	4822 126 11703	C CAP. 0.01U 50V
C957	4822 124 23894	E CAP. 39U 25V
C958	4822 124 22727	E CAP. 47U 16V
C960,61	4822 124 23875	E CAP. 47U 16V
C966,67	4822 124 23895	E CAP. 56U 16V
C969	4822 124 23895	E CAP. 56U 16V
C971	4822 126 11679	C CAP. 0.22U 50V
C973	4822 126 11703	C CAP. 0.01U 50V
C974,75	4822 124 23875	E CAP. 47U 16V
C976	4822 124 23895	E CAP. 56U 16V

Pos.	Parts code	Description
C977	4822 126 11687	C CAP. 0.1U 16V
C978	4822 126 11703	C CAP. 0.01U 50V
C979	4822 126 11688	C CAP. 0.047U 50V
C980	4822 126 11703	C CAP. 0.01U 50V
C981	4822 126 11688	C CAP. 0.047U 50V
C982-84	4822 126 11703	C CAP. 0.01U 50V
C985	4822 124 23878	E CAP. 33U 16V
C988	4822 126 11681	C CAP. 1000P 50V
C989	4822 126 11568	C CAP. 470P 50V
C990	4822 126 11681	C CAP. 1000P 50V
C991,92	4822 124 22725	E CAP. 10U 16V
C993	4822 126 11703	C CAP. 0.01U 50V
C995	4822 124 22725	E CAP. 10U 16V
C996	4822 126 11703	C CAP. 0.01U 50V
C997	4822 124 23464	E CAP. 1U 50V
C998	4822 124 23877	E CAP. 2.2U 35V
C999	4822 124 23464	E CAP. 1U 50V
*CP91	4822 209 30186	PROTECTOR UNIT ICP-N15
*CP93,94	4822 252 51025	PROTECTOR UNIT ICP-N10
*CP96,97	4822 209 30186	PROTECTOR UNIT ICP-N15
D301	4822 130 80289	DIODE MA141WK
D302	4822 130 82717	DIODE RD 5.6M (B)
D303-06	4822 130 80729	DIODE MA141A
D501	4822 130 80527	DIODE MA143
D502-04	4822 130 80729	DIODE MA141A
D902	4822 130 82712	DIODE RD18F B2
D905	4822 130 82728	DIODE SB05-05CP
D906	4822 130 82024	DIODE MA736
D907	4822 130 82728	DIODE SB05-05CP
D908	4822 130 82024	DIODE MA736
D910	4822 130 80728	DIODE MA121
D913	4822 130 80729	DIODE MA141A
D914	4822 130 80533	DIODE RD8.2M-B1
D916-18	4822 130 82024	DIODE MA736
D920	4822 130 82024	DIODE MA736
D922	4822 130 80732	DIODE MA728
D924	4822 130 80732	DIODE MA728
D926	4822 130 80732	DIODE MA728
D928,29	4822 130 80728	DIODE MA121
D930	4822 130 82727	DIODE 21DQ05
D931,32	4822 130 80729	DIODE MA141A
D934	4822 130 80729	DIODE MA141A
D935	4822 130 80728	DIODE MA121
D937-39	4822 130 80729	DIODE MA141A
D941	4822 130 82716	DIODE RD3.3M B
*FU91	4822 253 30376	FUSE 3.15A
L301	4822 157 63426	COIL 1000U
L302,03	4822 157 63416	COIL 100U
L501-03	4822 157 63425	COIL 100U
L504	4822 157 63414	COIL
L902	4822 157 63433	CHOKE COIL 22U
L903	4822 157 63435	CHOKE COIL 22U
L905	4822 157 63416	COIL 100U
L906	4822 157 63436	CHOKE COIL 390U
L908	4822 157 63575	COIL 180U
L909	4822 157 63433	CHOKE COIL 22U
L911	4822 157 63434	COIL 180U
L912	4822 157 63416	COIL 100U
L913	4822 157 63435	CHOKE COIL 22U
L914	4822 157 63575	COIL 180U
L915	4822 157 63436	CHOKE COIL 390U
L916	4822 157 63416	COIL 100U
N904,05	4822 267 60312	JACK 24P
P301	4822 100 11798	V RES. 50K
P302	4822 100 11187	V RES. 47KB
P501	4822 100 11795	V RES. 100K

Pos.	Parts code	Description
P901,02	4822 100 11802	V RES. 5K
P903,04	4822 100 11797	V RES. 20KB
Q301	4822 130 61057	TR UN5113
Q302	4822 130 61075	TR 2SB1218
Q303	4822 130 61059	TR UN5213
Q305	4822 130 62809	TR XP1501
Q306	4822 130 42664	TR 2SB970
Q307,08	4822 130 62813	TR 2SD1979
Q310,11	4822 130 61084	TR 2SD1819
Q313	4822 130 61059	TR UN5213
Q501,02	4822 130 61084	TR 2SD1819
Q503	4822 130 61059	TR UN5213
Q504	4822 130 61075	TR 2SB1218
Q505-08	4822 130 61084	TR 2SD1819
Q509	4822 130 62812	TR 2SB1184
Q510-13	4822 130 61059	TR UN5213
Q901	4822 130 62812	TR 2SB1184
Q902	4822 130 62809	TR XP1501
Q903-05	4822 130 62807	TR 2SA1739
Q906	4822 130 62808	TR 2SB1123
Q909	4822 130 42664	TR 2SB970
Q910	4822 130 62825	TR 2SD1624
Q911	4822 130 62809	TR XP1501
Q912	4822 130 42664	TR 2SB970
Q914	4822 130 61059	TR UN5213
Q918	4822 130 62824	TR 2SB1204
Q921	4822 130 62824	TR 2SB1204
Q927,28	4822 130 62808	TR 2SB1123
Q936	4822 130 61084	TR 2SD1819
Q937-40	4822 130 61059	TR UN5213
Q942	4822 130 61059	TR UN5213
Q943	4822 130 61075	TR 2SB1218
Q944	4822 130 61059	TR UN5213
R212	4822 051 30332	RES. 3.3K
R215	4822 051 30683	RES. 68K
R216	4822 116 83221	RES. 8.2K
R269	4822 051 30102	RES. 1K
R270,71	4822 051 30221	RES. 220
R301	4822 116 83206	RES. 120
R302	4822 116 83209	RES. 120K
R303	4822 051 30392	RES. 3.9K
R304	4822 051 30223	RES. 22K
R305	4822 051 30479	RES. 47
R306	4822 051 30109	RES. 10
R307	4822 051 30105	RES. 1M
R308	4822 051 30103	RES. 10K
R309	4822 051 30273	RES. 27K
R310	4822 051 30272	RES. 2.7K
R311,12	4822 116 83215	RES. 5.6K
R313	4822 051 30471	RES. 470
R314	4822 051 30103	RES. 10K
R315-17	4822 051 30103	RES. 10K
R318	4822 051 30472	RES. 4.7K
R320	4822 051 30333	RES. 33K
R321	4822 051 30103	RES. 10K
R322	4822 051 30682	RES. 6.8K
R325	4822 051 30103	RES. 10K
R326	4822 116 83207	RES. 1.2K
R328	4822 116 83214	RES. 39K
R329	4822 051 30229	RES. 22
R330	4822 051 30102	RES. 1K
R331	4822 051 30473	RES. 47K
R333	4822 051 30473	RES. 47K
R334	4822 051 30102	RES. 1K
R5A0-A2	4822 051 30103	RES. 10K
R5A3	4822 051 30334	RES. 330K
R5A4	4822 051 30103	RES. 10K
R5A5,A6	4822 116 83235	RES. 180 1/4W
R5A7,A8	4822 051 30272	RES. 2.7K
R5A9	4822 051 30223	RES. 22K
R5B0,B1	4822 051 30102	RES. 1K
R5B2,B3	4822 051 30223	RES. 22K
R5B4	4822 051 30103	RES. 10K
R5B5	4822 051 30334	RES. 330K
R5B7,B8	4822 051 30103	RES. 10K
R5B9	4822 051 30471	RES. 470
R5C0	4822 051 30471	RES. 470
R5C1	4822 051 30101	RES. 100
R5C2	4822 116 83214	RES. 39K
R5C3	4822 051 30103	RES. 10K
R5C4	4822 051 30223	RES. 22K
R5C7	4822 051 30103	RES. 10K
R5D0	4822 051 30102	RES. 1K
R5D3,D4	4822 051 30103	RES. 10K
R501	4822 051 30332	RES. 3.3K
R502	4822 051 30472	RES. 4.7K
R503	4822 116 83232	RES. 8.2K 1/10W
R504	4822 051 30472	RES. 4.7K
R505	4822 116 83231	RES. 620K 1/10W
R506	4822 051 30103	RES. 10K
R507	4822 111 91359	RES. 27K 1/10W
R508	4822 111 91074	RES. 15K 1/10W
R509	4822 051 30103	RES. 10K
R510	4822 051 30101	RES. 100
R511	4822 051 30471	RES. 470
R513	4822 051 30471	RES. 470
R514-16	4822 051 30229	RES. 22
R517	4822 051 30472	RES. 4.7K
R518,19	4822 051 30561	RES. 560
R520	4822 051 30102	RES. 1K
R521	4822 051 30473	RES. 47K
R522-24	4822 116 83227	RES. 1K 1/10W
R525	4822 051 30102	RES. 1K
R526	4822 051 30333	RES. 33K
R527	4822 051 30223	RES. 22K
R528	4822 051 30683	RES. 68K
R529	4822 051 30102	RES. 1K
R530	4822 051 30472	RES. 4.7K
R531	4822 116 83233	RES. 1 1/10W
R532	4822 051 30102	RES. 1K
R533-35	4822 051 30101	RES. 100
R536	4822 051 30339	RES. 33
R537,38	4822 051 30473	RES. 47K
R539	4822 051 30684	RES. 680K
R540	4822 051 30273	RES. 27K
R541	4822 051 30102	RES. 1K
R542	4822 051 30334	RES. 330K
R543	4822 051 30333	RES. 33K
R544	4822 116 83224	RES. 56 1/2W
R545	4822 051 30102	RES. 1K
R546,47	4822 051 30104	RES. 100K
R548	4822 051 30102	RES. 1K
R551	4822 051 30104	RES. 100K
R552	4822 051 30103	RES. 10K
R553,54	4822 051 30102	RES. 1K
R555	4822 116 83214	RES. 39K
R556,57	4822 051 30472	RES. 4.7K
R558,59	4822 051 30102	RES. 1K
R560	4822 051 30103	RES. 10K
R561	4822 051 30472	RES. 4.7K
R562	4822 116 83212	RES. 18K
R563-65	4822 051 30102	RES. 1K
R566,67	4822 051 30103	RES. 10K
R568	4822 051 30472	RES. 4.7K
R569,70	4822 051 30103	RES. 10K

Pos.	Parts code	Description
R571	4822 051 30472	RES. 4.7K
R572	4822 051 30683	RES. 68K
R573	4822 051 30472	RES. 4.7K
R574	4822 051 30474	RES. 470K
R575	4822 051 30103	RES. 10K
R576	4822 051 30223	RES. 22K
R577	4822 116 83208	RES. 12K
R578	4822 116 83217	RES. 560K
R579	4822 051 30101	RES. 100
R580,81	4822 051 30103	RES. 10K
R582	4822 116 83214	RES. 39K
R583	4822 051 30473	RES. 47K
R584,85	4822 051 30103	RES. 10K
R586,87	4822 051 30223	RES. 22K
R588,89	4822 051 30103	RES. 10K
R591	4822 051 30102	RES. 1K
R592	4822 116 83233	RES. 1
R594	4822 051 30103	RES. 10K
R595,96	4822 051 30472	RES. 4.7K
R597,98	4822 051 30103	RES. 10K
R599	4822 051 30472	RES. 4.7K
R9A0	4822 116 83256	RES. 56K
R9A1	4822 116 83254	RES. 18K
R9B3,B4	4822 116 90503	RES. 150
R9B6	4822 111 90886	RES. 51K 1/10W
R9C1	4822 051 30472	RES. 4.7K
R9C2	4822 111 90888	RES. 68K
R9C3	4822 116 83256	RES. 56K
R9C4	4822 116 82573	RES. 22K 1/10W
R9C5	4822 116 83212	RES. 18K
R9C6	4822 051 30222	RES. 2.2K
R9C8	4822 111 91359	RES. 27K 1/10W
R9D2	4822 116 83211	RES. 1.8K
R9D3	4822 051 30472	RES. 4.7K
R9D4	4822 051 30473	RES. 47K
R9D5	4822 116 83208	RES. 12K
R9D6	4822 051 30333	RES. 33K
R9D7	4822 051 30473	RES. 47K
R9D8	4822 051 30334	RES. 330K
R9D9	4822 116 83211	RES. 1.8K
R9E1	4822 051 30102	RES. 1K
R9E3	4822 051 30473	RES. 47K
R9E4	4822 051 30152	RES. 1.5K
R9E7	4822 111 91362	RES. 36K 1/10W
R9E8	4822 116 83216	RES. 56K
R9E9	4822 051 30472	RES. 4.7K
R9F1	4822 116 83216	RES. 56K
R9F2	4822 051 30103	RES. 10K
R9F3	4822 051 30473	RES. 47K
R9F4	4822 051 30684	RES. 680
R9F5	4822 051 30153	RES. 15K
R9F6	4822 051 30471	RES. 470
R901	4822 051 30222	RES. 2.2K
R902	4822 051 30153	RES. 15K
R903	4822 111 91136	RES. 12K
R904	4822 051 30102	RES. 1K
R905	4822 111 90888	RES. 68K 1/10W
R906	4822 051 30333	RES. 33K
R909	4822 116 83214	RES. 39K
R912	4822 116 83208	RES. 12K
R917	4822 116 83254	RES. 18K 1/10W
R918	4822 051 30272	RES. 2.7K
R919	4822 051 30273	RES. 27K
R920	4822 051 30222	RES. 2.2K
R921	4822 116 83211	RES. 1.8K
R922	4822 051 30334	RES. 330K
R923	4822 116 83259	RES. 100 1/2W
R926	4822 051 30272	RES. 2.7K

Pos.	Parts code	Description
R927	4822 111 91136	RES. 12K 1/10W
R936	4822 111 90888	RES. 68K 1/10W
R937	4822 116 83252	RES. 100 1/10W
R938	4822 116 83253	RES. 1.5K 1/10W
R939	4822 111 91365	RES. 470 1/10W
R940	4822 116 83232	RES. 8.2K 1/10W
R941,42	4822 116 83255	RES. 3.3K 1/10W
R943	4822 116 83252	RES. 100 1/10W
R944,45	4822 111 91136	RES. 12K 1/10W
R946	4822 111 90915	RES. 390 1/10W
R947	4822 116 83339	RES. 56
R948	4822 111 91359	RES. 27K
R949	4822 111 91362	RES. 36K
R952	4822 116 82573	RES. 22K 1/10W
R953	4822 111 91192	RES. 470
R954	4822 051 30479	RES. 47
R956	4822 051 30272	RES. 2.7K
R957	4822 111 90888	RES. 68K 1/10W
R962	4822 051 30223	RES. 22K
R963	4822 051 30103	RES. 10K
R968	4822 116 83218	RES. 68
R969	4822 111 90924	RES. 680 1/10W
R971	4822 116 83218	RES. 68
R972	4822 111 90924	RES. 680 1/10W
R974	4822 116 83256	RES. 56K 1/10W
R978	4822 051 30473	RES. 47K
R980-83	4822 116 83258	RES. 5.6M 1/10W
R984	4822 051 30223	RES. 22K
R985	4822 116 83222	RES. 82K
R986	4822 051 30472	RES. 4.7K
R987	4822 051 30103	RES. 10K
R988	4822 051 30223	RES. 22K
R989	4822 111 90888	RES. 68K 1/10W
R991	4822 051 30333	RES. 33K
R992	4822 116 83207	RES. 1.2K
R993	4822 051 30272	RES. 2.7K
R994	4822 051 30221	RES. 220
R995	4822 116 83352	RES. 560 1/10W
R996	4822 051 30272	RES. 2.7K
R999	4822 051 30103	RES. 10K
TR31	4822 157 63428	BIAS OSC
TR32	4822 157 63428	MAIN ERASE OSC
TR90	4822 146 21642	TRANSFORMER CEI-120
U301	4822 209 60597	IC BA7757
U302	4822 209 73856	IC 74HC86
U501	4822 209 61721	IC BA10339F
U502	4822 209 30292	IC HC4052F
U503	4822 209 30282	IC TDA5140AT
U504	4822 209 30283	IC SAA1310TA
U505	4822 209 30284	IC SAD1009T
U506	4822 209 60046	IC BA6432S
U507	4822 209 30289	IC TA8409F
U508	4822 209 52101	IC CV5203/CV5234 SYSCON
U509	4822 209 61721	IC BA10339
U510	4822 209 63785	IC BA10358F
U511	4822 209 63341	IC 74HC02
U512	4822 209 61187	IC BA15218
U901	4822 209 30304	IC S-81350HG
U902	4822 209 30306	IC BA6132F
U903	4822 209 61721	IC BA10339F
U904	4822 209 70108	IC BA10393F
U905	4822 209 63785	IC BA10358F
X501	4822 242 80344	X-TAL 12MHZ
HEAD AMP PCB ASSEMBLY		
C406	4822 122 33752	C CAP. 15P 50V

Pos.	Parts code	Description
C407	4822 126 11562	C CAP. 100P 50V
C408	4822 126 11694	C CAP. 270P 50V
C409	4822 126 11703	C CAP. 0.01U 50V
C410	4822 126 11563	C CAP. 180P 50V
C411,12	4822 126 11703	C CAP. 0.01U 50V
C414	4822 126 11704	C CAP. 0.022U 50V
C415	4822 126 11703	C CAP. 0.01U 50V
C416	4822 124 22727	E CAP. 47U 16V
C427	4822 122 33785	C CAP. 68P 50V
C428	4822 126 11694	C CAP. 270P 50V
C429	4822 126 11663	C CAP. 12P 50V
C430	4822 122 33752	C CAP. 15P 50V
C431	4822 126 11703	C CAP. 0.01U 50V
C433	4822 126 11703	C CAP. 0.01U 50V
C434	4822 126 11704	C CAP. 0.022U 50V
C435	4822 126 11671	C CAP. 33P 50V
C437	4822 126 11696	C CAP. 470P 50V
C438	4822 126 11704	C CAP. 0.022U 50V
C439	4822 126 11565	C CAP. 0.01U 25V
C440	4822 126 11703	C CAP. 0.01U 50V
C441,42	4822 126 11563	C CAP. 180P 50V
C443	4822 126 11562	C CAP. 100P 50V
C444	4822 126 11694	C CAP. 270P 50V
C445	4822 124 11074	E CAP. 10U 16V
C447	4822 124 11074	E CAP. 10U 16V
C449	4822 124 41842	E CAP. 47U 16V
C450-52	4822 126 11703	C CAP. 0.01U 50V
C453	4822 126 11687	C CAP. 0.1U 16V
C454	4822 126 11681	C CAP. 1000P 50V
C455	4822 126 11703	C CAP. 0.01U 50V
C456	4822 124 41842	E CAP. 47U 16V
C457	4822 126 11703	C CAP. 0.01U 50V
C458	4822 122 33752	C CAP. 15P 50V
C459	4822 126 11703	C CAP. 0.01U 50V
C460	4822 124 22727	E CAP. 47U 16V
C461	4822 124 23464	E CAP. 1U 50V
C465	4822 126 11669	C CAP. 27P 50V
C466	4822 126 11703	C CAP. 0.01U 50V
C468	4822 126 11703	C CAP. 0.01U 50V
C469	4822 122 33788	C CAP. 82P 50V
C470,71	4822 126 11679	C CAP. 0.22UF 16V
C472	4822 126 11703	C CAP. 0.01U 50V
C473	4822 126 11681	C CAP. 1000P 50V
C474	4822 126 11703	C CAP. 0.01U 50V
C475	4822 124 22727	E CAP. 47U 16V
C476	4822 122 33751	C CAP. 120P 50V
C477,78	4822 124 22727	E CAP. 47U 16V
C479	4822 126 11704	C CAP. 0.022U 50V
C480	4822 126 11669	C CAP. 27P 50V
C481	4822 126 11703	C CAP. 0.01U 50V
D403-05	4822 130 80729	DIODE MA141A
D406	4822 130 82717	DIODE RD5.6M (B)
L405	4822 157 63417	COIL 15U
L406	4822 157 63422	COIL 33U
L407	4822 157 63419	COIL 220U
L408	4822 157 63424	COIL 82U
L409	4822 157 63427	COIL 270U
L415	4822 157 63418	COIL 22U
L416	4822 157 63419	COIL 220U
L417	4822 157 63421	COIL 27U
L418	4822 157 63417	COIL 15U
L419	4822 157 63415	COIL 1U
L420	4822 157 63425	COIL 100U
L421	4822 157 63422	COIL 33U
L422	4822 157 63425	COIL 100U
L425	4822 157 63423	COIL 68U
L426,27	4822 157 63425	COIL 100U

Pos.	Parts code	Description
P401	4822 100 11796	V RES. 2KB
P403	4822 100 11787	V RES. 1KB
Q402	4822 130 61084	TR 2SD1819
Q408-10	4822 130 61084	TR 2SD1819
Q412	4822 130 61084	TR 2SD1819
Q413	4822 130 61075	TR 2SB1218
Q414-18	4822 130 61084	TR 2SD1819
Q419	4822 130 42664	TR 2SB970
Q420,21	4822 130 61084	TR 2SD1819
Q422	4822 130 61059	TR UN5213
Q425	4822 130 61084	TR 2SD1819
Q427,28	4822 130 61084	TR 2SD1819
Q430	4822 130 42664	TR 2SB970
Q431	4822 130 61059	TR UN5213
Q432	4822 130 62813	TR 2SD1979
Q433	4822 130 42664	TR 2SB970
Q434-36	4822 130 61059	TR UN5213
R4A0	4822 051 30102	RES. 1K
R4A1	4822 051 30479	RES. 47
R4A2	4822 051 30102	RES. 1K
R4A3	4822 051 30222	RES. 2.2K
R4A4	4822 051 30102	RES. 1K
R4A5	4822 051 30221	RES. 220
R4A6	4822 051 30471	RES. 470
R408	4822 051 30331	RES. 330
R409	4822 051 30684	RES. 680
R410	4822 051 30102	RES. 1K
R412	4822 051 30102	RES. 1K
R431,32	4822 051 30103	RES. 10K
R433,34	4822 051 30561	RES. 560
R435	4822 051 30684	RES. 680
R436,37	4822 051 30102	RES. 1K
R438	4822 051 30472	RES. 4.7K
R439	4822 051 30102	RES. 1K
R441	4822 051 30103	RES. 10K
R442	4822 051 30472	RES. 4.7K
R443	4822 051 30222	RES. 2.2K
R444	4822 051 30471	RES. 470
R445	4822 051 30152	RES. 1.5K
R446	4822 051 30222	RES. 2.2K
R447	4822 116 83214	RES. 39K
R448	4822 051 30682	RES. 6.8K
R449	4822 051 30272	RES. 2.7K
R450	4822 051 30151	RES. 150
R451	4822 051 30152	RES. 1.5K
R452	4822 116 83221	RES. 8.2K
R453	4822 051 30333	RES. 33K
R454,55	4822 051 30105	RES. 1M
R456	4822 051 30684	RES. 680
R457	4822 116 83219	RES. 820
R458	4822 051 30222	RES. 2.2K
R459	4822 051 30684	RES. 680
R460	4822 051 30273	RES. 27K
R463	4822 116 83234	RES. 5.6
R464,65	4822 116 83214	RES. 39K
R466	4822 116 83234	RES. 5.6
R467,68	4822 051 30102	RES. 1K
R469	4822 051 30331	RES. 330
R470	4822 051 30272	RES. 2.7K
R471	4822 051 30684	RES. 680
R472	4822 116 83219	RES. 820
R473	4822 051 30102	RES. 1K
R474	4822 051 30472	RES. 4.7K
R475	4822 116 83207	RES. 1.2K
R477	4822 051 30333	RES. 33K
R478,79	4822 051 30103	RES. 10K
R484,85	4822 051 30103	RES. 10K

Pos.	Parts code	Description
R486	4822 116 83207	RES. 1.2K
R487	4822 116 83211	RES. 1.8K
R488	4822 051 30273	RES. 27K
R489	4822 051 30153	RES. 15K
R490	4822 051 30152	RES. 1.5K
R491	4822 051 30471	RES. 470
R492	4822 051 30332	RES. 3.3K
R494	4822 116 83214	RES. 39K
R495	4822 051 30222	RES. 2.2K
R496	4822 051 30102	RES. 1K
R497	4822 116 83214	RES. 39K
R498	4822 051 30222	RES. 2.2K
TR41	4822 157 60087	TRANS OSC
U401	4822 209 30286	IC AN3334S

INDICATOR PCB ASSEMBLY

Pos.	Parts code	Description
C604	4822 122 33777	C CAP. 47P 50V
C605	4822 124 23464	E CAP. 1U 50V
C606	4822 122 33752	C CAP. 15P 50V
C607	4822 126 11703	C CAP. 0.01U 50V
C608,09	4822 126 11564	C CAP. 22P 50V
C610	4822 126 11699	F CAP. 0.033U 50V
C611	4822 126 11703	C CAP. 0.01U 50V
C612,13	4822 124 22725	E CAP. 10U 16V
C614	4822 124 22727	E CAP. 47U 16V
C616	4822 126 11703	C CAP. 0.01U 50V
C618	4822 124 23879	E CAP. 4.7U 16V
C619	4822 124 23464	E CAP. 1U 50V
C620	4822 126 11678	C CAP. 1U 50V
C621	4822 124 23876	E CAP. 100U 6.3V
C622	4822 126 11703	C CAP. 0.01U 50V
C623	4822 124 23464	E CAP. 1U 50V
C624	4822 126 11678	C CAP. 1U 50V
C625	4822 124 22727	E CAP. 47U 16V
C626	4822 126 11703	C CAP. 0.01U 50V
C627	4822 124 22725	E CAP. 10U 16V
C628	4822 126 11685	C CAP. 4700PF 50V
C629	4822 124 22725	E CAP. 10U 16V
C630	4822 126 11681	C CAP. 1000P 50V
C631	4822 122 33753	C CAP. 150P 50V
D601	4822 130 80376	DIODE MA141WA
D603,04	4822 130 80289	DIODE MA141WK
D605-09	4822 130 80729	DIODE MA141A
D611	4822 130 80527	DIODE MA143
D612	4822 130 80729	DIODE MA141A
D613	4822 130 32955	DIODE 02CZ5.1-Y
D614	4822 130 80729	DIODE MA141A
D615	4822 130 82716	DIODE RD3.3M B
D616	4822 130 80729	DIODE MA141A
D617	4822 130 80289	DIODE MA141WK
L601	4822 157 63422	COIL 33U
L602,03	4822 157 63425	COIL 100U
L604	4822 157 63416	COIL 10U
P601	4822 100 11797	V RES. 20KB
Q602	4822 130 61059	TR UN5213
Q603	4822 130 61057	TR UN5113
Q605,06	4822 130 61075	TR 2SB1218
Q613	4822 130 61059	TR UN5213
Q614	4822 130 60564	TR 2SB956
Q615,16	4822 130 61059	TR UN5213
Q617	4822 130 42664	TR 2SB970
Q618	4822 130 61084	TR 2SD1819
Q619	4822 130 61059	TR UN5213
Q620	4822 130 61075	TR 2SB1218
R6A0	4822 051 30102	RES. 1K
R6A1	4822 051 30105	RES. 1M
R6A2,A3	4822 051 30104	RES. 100K
R6A4	4822 111 91137	RES. 2.2M
R6A5	4822 051 30102	RES. 1K
R6A6	4822 051 30472	RES. 4.7K
R6A7	4822 051 30684	RES. 680
R6A9	4822 051 30222	RES. 2.2K
R6B0	4822 051 30222	RES. 2.2K
R6B1	4822 116 83213	RES. 270
R6B2	4822 051 30472	RES. 4.7K
R6B3	4822 051 30103	RES. 10K
R6B4,B5	4822 051 30104	RES. 100K
R601-04	4822 051 30103	RES. 10K
R605	4822 051 30472	RES. 4.7K
R606-08	4822 051 30223	RES. 22K
R610	4822 051 30479	RES. 47
R611	4822 051 30103	RES. 10K
R612	4822 051 30223	RES. 22K
R613	4822 116 83222	RES. 82K
R614	4822 051 30223	RES. 22K
R615	4822 116 83222	RES. 82K
R616	4822 051 30223	RES. 22K
R617	4822 116 83211	RES. 1.8K
R618	4822 051 30472	RES. 4.7K
R619	4822 051 30103	RES. 10K
R620	4822 051 30223	RES. 22K
R621	4822 051 30103	RES. 10K
R622	4822 051 30472	RES. 4.7K
R623	4822 116 83211	RES. 1.8K
R624	4822 051 30223	RES. 22K
R625	4822 116 83222	RES. 82K
R626,27	4822 051 30223	RES. 22K
R628	4822 051 30273	RES. 27K
R629	4822 051 30473	RES. 47K
R634	4822 051 30223	RES. 22K
R636	4822 051 30472	RES. 4.7K
R637	4822 051 30391	RES. 390
R638	4822 051 30223	RES. 22K
R639	4822 051 30103	RES. 10K
R640	4822 051 30472	RES. 4.7K
R641	4822 116 83211	RES. 1.8K
R642	4822 116 83222	RES. 82K
R643	4822 051 30682	RES. 6.8K
R644,45	4822 051 30103	RES. 10K
R646	4822 051 30102	RES. 1K
R647	4822 051 30472	RES. 4.7K
R648	4822 051 30102	RES. 1K
R651	4822 116 83208	RES. 12K
R652	4822 051 30223	RES. 22K
R661	4822 051 30103	RES. 10K
R662,63	4822 051 30223	RES. 22K
R664	4822 051 30103	RES. 10K
R665	4822 051 30102	RES. 1K
R666	4822 051 30223	RES. 22K
R667	4822 116 83222	RES. 82K
R668	4822 051 30104	RES. 100K
R671	4822 051 30104	RES. 100K
R672	4822 051 30103	RES. 10K
R673,74	4822 051 30473	RES. 47K
R675	4822 051 30223	RES. 22K
R676-79	4822 051 30103	RES. 10K
R682	4822 051 30472	RES. 4.7K
R683	4822 051 30153	RES. 15K
R684	4822 051 30473	RES. 47K
R687	4822 051 30104	RES. 100K
R688	4822 116 83216	RES. 56K
R689	4822 116 83219	RES. 820
R690	4822 116 83229	RES. 33K 1/10W
R691	4822 116 82573	RES. 22K 1/10W
R692	4822 051 30473	RES. 47K
R693	4822 051 30472	RES. 4.7K

Pos.	Parts code	Description
R694	4822 051 30102	RES. 1K
R695	4822 051 30472	RES. 4.7K
R696	4822 051 30102	RES. 1K
R697	4822 051 30472	RES. 4.7K
R698	4822 111 90883	RES. 10K 1/10W
R699	4822 111 91362	RES. 36K 1/10W
S601-15	4822 276 13138	PUSH SWITCH
U603	4822 209 30295	IC CV5222/CV5233 IND
U604	4822 209 63376	IC UPD6145G
U607	4822 209 30291	IC HC4051
U608	4822 209 61721	IC BA10339
U609	4822 209 62329	IC PST520C
U610	5322 209 62343	IC PCF8583
U611	4822 209 63785	IC BA10358F
U612	4822 209 70108	IC BA10393F
U613	4822 209 63785	IC BA10358
V601	4822 125 60163	V CAP. 47PF
X602	4822 242 73875	X-TAL 31KHZ
X603	4822 242 80344	X-TAL 12MHZ

OPERATION PCB ASSEMBLY

Pos.	Parts code	Description
C702,03	4822 124 22725	E CAP. 10U 16V
D7A1	4822 130 82069	DIODE SLR-34VR
D701-07	4822 130 82071	DIODE SLR-34MG
D708	4822 130 82069	DIODE SLR-34VR
R701,02	4822 116 52249	RES. 1.8K 1/6W
R703,04	4822 116 52283	RES. 4.7K 1/6W
R705,06	4822 116 52257	RES. 22K 1/6W
R708	4822 116 52249	RES. 1.8K 1/6W
R709	4822 116 52283	RES. 4.7K 1/6W
R710,11	4822 116 52304	RES. 82K 1/6W
R712	4822 116 52226	RES. 560 1/6W
R717-23	4822 116 52222	RES. 390 1/6W
R724,25	4822 116 52257	RES. 22K 1/6W
R726,27	4822 116 52233	RES. 10K 1/6W
R728	4822 116 52284	RES. 47K 1/6W
S7A1	4822 276 13024	SW PUSH
S7B1	4822 276 13018	SW
S7C1	4822 276 13142	SW TACT
S7D1,D2	4822 276 13142	SW TACT
S7D4	4822 276 13142	SW TACT
S701-14	4822 276 13142	SW TACT
S717	4822 276 12967	SW SLIDE
U701	4822 209 30307	IC 74HC4094

VIDEO PCB ASSEMBLY

Pos.	Parts code	Description
C0A0	4822 126 11695	C CAP. 330P 50V
C0A1	4822 122 33751	C CAP. 120P 50V
C001	4822 122 33782	C CAP. 56P 50V
C002	4822 122 33788	C CAP. 82P 50V
C005	4822 126 11659	C CAP. 3P 50V
C006	4822 126 11696	C CAP. 470P 50V
C007,08	4822 126 11703	C CAP. 0.01U 50V
C009	4822 126 11696	C CAP. 470P 50V
C010	4822 126 11564	C CAP. 22P 50V
C011	4822 126 11724	C CAP. 560P 50V
C012	4822 124 23877	E CAP. 2.2U 35V
C013,14	4822 124 23879	E CAP. 4.7U 16V
C015	4822 126 11663	C CAP. 12P 50V
C016,17	4822 126 11703	C CAP. 0.01U 50V
C019	4822 126 11703	C CAP. 0.01U 50V
C020	4822 126 11704	C CAP. 0.022U 50V
C043	4822 126 11723	C CAP. 390PF 50V
C045	4822 126 11688	C CAP. 0.047U 50V
C047	4822 126 11688	C CAP. 0.047U 50V
C048	4822 122 33788	C CAP. 82P 50V
C049,50	4822 126 11703	C CAP. 0.01U 50V
C051	4822 121 43994	F CAP. 0.33U 50V
C052,53	4822 126 11703	C CAP. 0.01U 50V
C054	4822 124 23879	E CAP. 4.7U 16V
C055,56	4822 124 22725	E CAP. 10U 16V
C057,58	4822 124 23879	E CAP. 4.7U 16V
C059	4822 124 23876	E CAP. 100U 6.3V
C060	4822 126 11703	C CAP. 0.01U 50V
C061	4822 124 23883	E CAP. 4.7U 16V
C063	4822 124 23525	E CAP. 22U 16V
C064	4822 124 23879	E CAP. 4.7U 16V
C065,66	4822 126 11703	C CAP. 0.01U 50V
C067	4822 121 43985	F CAP. 0.47U 50V
C068	4822 124 23879	E CAP. 4.7U 16V
C069-71	4822 126 11703	C CAP. 0.01U 50V
C073	4822 124 23879	E CAP. 4.7U 16V
C076	4822 126 11663	C CAP. 12P 50V
C077	4822 126 11662	C CAP. 10P 50V
C078	4822 122 33777	C CAP. 47P 50V
C079	4822 126 11662	C CAP. 10P 50V
C080	4822 126 11696	C CAP. 470P 50V
C081	4822 126 11668	C CAP. 220P 50V
C084	4822 126 11687	C CAP. 0.1U 16V
C085	4822 122 33782	C CAP. 56P 50V
C095	4822 126 11669	C CAP. 27P 50V
C096	4822 126 11704	C CAP. 0.022U 50V
C101	4822 126 11681	C CAP. 1000P 50V
C102,03	4822 121 43993	F CAP. 0.22U 50V
C104	4822 121 43984	F CAP. 0.047U 50V
C105	4822 126 11681	C CAP. 1000P 50V
C107	4822 126 11697	F CAP. 0.1U 50V
C108	4822 122 33785	C CAP. 68P 50V
C109	4822 126 11668	C CAP. 220P 50V
C110	4822 126 11703	C CAP. 0.01U 50V
C111	4822 124 23876	E CAP. 100U 6.3V
C112	4822 126 11681	C CAP. 1000P 50V
C113	4822 126 11697	F CAP. 0.1U 50V
C114	4822 126 11669	C CAP. 27P 50V
C115	4822 126 11668	C CAP. 220P 50V
C116	4822 126 11671	C CAP. 33P 50V
C117	4822 124 22727	E CAP. 47U 16V
C118	4822 126 11681	C CAP. 1000P 50V
C119	4822 126 11703	C CAP. 0.01U 50V
C120	4822 121 43993	F CAP. 0.22U 50V
C121	4822 126 11681	C CAP. 1000P 50V
C123	4822 126 11662	C CAP. 10P 50V
C124	4822 126 11684	C CAP. 3900P 50
C125,26	4822 121 43985	F CAP. 0.47U 50V
C127	4822 126 11704	C CAP. 0.022U 50V
C128	4822 121 43984	F CAP. 0.047U 50V
C129	4822 126 11703	C CAP. 0.01U 50V
C130	4822 124 23896	E CAP. 1.5U 50V
C131	4822 126 11686	C CAP. 6800P 50V
C133	4822 126 11562	C CAP. 100P 50V
C134	4822 126 11694	C CAP. 270P 50V
C135	4822 126 11684	C CAP. 3900P 50V
C136	4822 124 23896	E CAP. 1.5U 50V
C138	4822 126 11703	C CAP. 0.01U 50V
C149	4822 126 11703	C CAP. 0.01U 50V
C150	4822 124 22727	E CAP. 47U 16V
C151	4822 122 33777	C CAP. 47P 50V
C7Z1	4822 124 22727	E CAP. 47U 16V
C7Z2	4822 124 23525	E CAP. 22U 16V
C7Z3	4822 124 22727	E CAP. 47U 16V
C801,02	4822 124 23464	E CAP. 1U 50V
C803	4822 126 11697	F CAP. 0.1U 50V
C804	4822 126 11704	C CAP. 0.022U 50V
C805	4822 124 23464	E CAP. 1U 50V
C806	4822 126 11702	C CAP. 680P 50V

Pos.	Parts code	Description
C807	4822 126 11703	C CAP. 0.01U 50V
C808	4822 124 22727	E CAP. 47U 16V
C809	4822 126 11697	F CAP. 0.1U 50V
C810,11	4822 126 11703	C CAP. 0.01U 50V
C812	4822 126 11681	C CAP. 1000P 50V
C813	4822 126 11697	F CAP. 0.1U 50V
C814	4822 126 11668	C CAP. 220P 50V
C815,16	4822 126 11703	C CAP. 0.01U 50V
C820	4822 124 22725	E CAP. 10U 16V
C821	4822 124 22727	E CAP. 47U 16V
C822	4822 126 11703	C CAP. 0.01U 50V
C826	4822 126 11662	C CAP. 10P 50V
C828	4822 124 23536	E CAP. 470U 4V
C829	4822 124 22727	E CAP. 47U 16V
C830	4822 126 11703	C CAP. 0.01U 50V
C831	4822 124 23879	E CAP. 4.7U 16V
C834	4822 126 11703	C CAP. 0.01U 50V
C835	4822 126 11668	C CAP. 220P 50V
C836	4822 122 33753	C CAP. 150P 50V
C840	4822 124 22725	E CAP. 10U 16V
C842	4822 124 22725	E CAP. 10U 16V
C843	4822 126 11688	C CAP. 0.047U 50V
C847,48	4822 126 11703	C CAP. 0.01U 50V
C849	4822 124 22727	E CAP. 47U 16V
C864	4822 124 22725	E CAP. 10U 16V
C865	4822 126 11703	C CAP. 0.01U 50V
C868	4822 124 22725	E CAP. 10U 16V
D001	4822 130 80729	DIODE MA141A
D101	4822 130 80729	DIODE MA141A
D201	4822 130 80289	DIODE MA141WK
D7Z7	4822 130 80729	DIODE MA141A
D801	4822 130 80376	DIODE MA141WA
D802,03	4822 130 80289	DIODE MA141WK
D807-09	4822 130 80289	DIODE MA141WK
D810-12	4822 130 80527	DIODE MA143
F001	4822 153 70043	L.P.F
F003	4822 153 70037	L.P.F 3.1MHZ
F004	4822 153 70038	L.P.F
F1Z1	4822 320 40219	COMB FILTER
F101	4822 153 70039	B.P.F 4.43MHZ
F102	4822 153 70036	L.P.F 1MHZ
F104	4822 153 70042	OSC 5.06MHZ
F105	4822 153 70041	OSC 4.43MHZ
F106	4822 153 70044	TRAP 5.69MHZ
F107	4822 153 70035	TRAP 70KHZ
L001	4822 157 63438	COIL 100U
L002	4822 157 63419	COIL 220U
L004	4822 157 63439	COIL 18U
L006-08	4822 157 63416	COIL 100U
L010	4822 157 63416	COIL 100U
L012	4822 157 63438	COIL 100U
L102	4822 157 63426	COIL 1000U
L103	4822 157 63438	COIL 100U
L104	4822 157 63437	COIL 10U
L105	4822 157 63417	COIL 15U
L106	4822 157 63437	COIL 10U
L107	4822 157 63416	COIL 100U
L108	4822 157 63437	COIL 10U
L109	4822 157 63421	COIL 27U
L111	4822 157 63416	COIL 100U
L801	4822 157 63416	COIL 100U
L803	4822 157 63416	COIL 100U
L805,06	4822 157 63416	COIL 100U
P002,03	4822 100 11789	V RES. 20KB
P005	4822 100 11789	V RES. 20KB
P007	4822 100 11791	V RES. 5KB
P009	4822 100 11801	V RES. 10KB
P010	4822 100 11787	V RES. 1KB

Pos.	Parts code	Description
P011	4822 100 11789	V RES. 20KB
P101,02	4822 100 11789	V RES. 20KB
P801	4822 100 11792	V RES. 50K
Q002	4822 130 61059	TR UN5213
Q005	4822 130 61059	TR UN5213
Q007	4822 130 61084	TR 2SD1819
Q014	4822 130 61084	TR 2SD1819
Q020,21	4822 130 61084	TR 2SD1819
Q023-25	4822 130 61059	TR UN5213
Q026	4822 130 61075	TR 2SB1218
Q027	4822 130 61059	TR UN5213
Q101	4822 130 61084	TR 2SD1819
Q102,03	4822 130 61075	TR 2SB1218
Q104	4822 130 61084	TR 2SD1819
Q106	4822 130 61084	TR 2SD1819
Q118	4822 130 61059	TR UN5213
Q121	4822 130 61059	TR UN5213
Q135	4822 130 62813	TR 2SD1979
Q136	4822 130 61059	TR UN5213
Q7Z4	4822 130 61059	TR UN5213
Q7Z5	4822 130 42664	TR 2SB970
Q7Z6	4822 130 61075	TR 2SB1218
Q7Z7	4822 130 61059	TR UN5213
Q801	4822 130 61084	TR 2SD1819
Q803	4822 130 62574	TR XP1401
Q805	4822 130 61084	TR 2SD1819
Q806	4822 130 61075	TR 2SB1218
Q811	4822 130 61075	TR 2SB1218
Q812	4822 130 61084	TR 2SD1819
Q814	4822 130 61084	TR 2SD1819
Q819	4822 130 61084	TR 2SD1819
Q820	4822 130 61075	TR 2SB1218
Q821	4822 130 62606	TR XP2501
Q826	4822 130 61084	TR 2SD1819
Q827	4822 130 62811	TR XP2401
Q828	4822 130 61075	TR 2SB1218
Q833	4822 130 61075	TR 2SB1218
Q834	4822 130 62574	TR XP1401
Q835,36	4822 130 61059	TR UN5213
Q840	4822 130 61084	TR 2SD1819
Q845,46	4822 130 61075	TR 2SB1218
Q847	4822 130 61059	TR UN5213
Q859,60	4822 130 61084	TR 2SD1819
Q864	4822 130 61075	TR 2SB1218
Q865	4822 130 61059	TR UN5213
Q866	4822 130 61075	TR 2SB1218
Q867	4822 130 61059	TR UN5213
Q868	4822 130 61075	TR 2SB1218
R001	4822 051 30102	RES. 1K
R002	4822 051 30272	RES. 2.7K
R005	4822 051 30221	RES. 220
R006	4822 051 30102	RES. 1K
R007,08	4822 051 30103	RES. 10K
R010	4822 051 30152	RES. 1.5K
R011	4822 116 83213	RES. 270
R012	4822 051 30102	RES. 1K
R013,14	4822 051 30223	RES. 22K
R015	4822 051 30102	RES. 1K
R016	4822 051 30152	RES. 1.5K
R017	4822 051 30272	RES. 2.7K
R018	4822 051 30334	RES. 330K
R019	4822 051 30153	RES. 15K
R023	4822 051 30102	RES. 1K
R024,25	4822 116 83215	RES. 5.6K
R026	4822 051 30682	RES. 6.8K
R034	4822 051 30272	RES. 2.7K
R044,45	4822 051 30333	RES. 33K

Pos.	Parts code	Description
R052	4822 051 30152	RES. 1.5K
R058	4822 051 30684	RES. 680
R063,64	4822 051 30102	RES. 1K
R065	4822 051 30333	RES. 33K
R066	4822 051 30102	RES. 1K
R067	4822 116 83207	RES. 1.2K
R071	4822 111 91137	RES. 2.2M 1/10W
R072	4822 051 30224	RES. 220K
R073	4822 116 83217	RES. 560K
R074	4822 051 30102	RES. 1K
R075	4822 051 30473	RES. 47K
R077	4822 051 30102	RES. 1K
R078	4822 051 30153	RES. 15K
R081	4822 051 30223	RES. 22K
R082,83	4822 051 30561	RES. 560
R085	4822 051 30222	RES. 2.2K
R087	4822 051 30222	RES. 2.2K
R088	4822 051 30333	RES. 33K
R089,90	4822 051 30222	RES. 2.2K
R091	4822 051 30223	RES. 22K
R092	4822 051 30561	RES. 560
R093	4822 051 30102	RES. 1K
R095	4822 051 30223	RES. 22K
R096,97	4822 051 30472	RES. 4.7K
R1B3	4822 051 30153	RES. 15K
R1D1	4822 051 30683	RES. 68K
R1D6,D7	4822 051 30473	RES. 47K
R1D8	4822 051 30561	RES. 560
R101	4822 051 30561	RES. 560
R102	4822 051 30471	RES. 470
R103	4822 051 30222	RES. 2.2K
R104-08	4822 051 30102	RES. 1K
R109	4822 051 30221	RES. 220
R110	4822 116 83219	RES. 820
R111	4822 051 30222	RES. 2.2K
R112	4822 051 30474	RES. 470K
R113	4822 051 30102	RES. 1K
R114	4822 116 83207	RES. 1.2K
R115	4822 051 30152	RES. 1.5K
R116	4822 116 83213	RES. 270
R117	4822 051 30102	RES. 1K
R118	4822 116 83207	RES. 1.2K
R119	4822 051 30684	RES. 680
R120	4822 051 30102	RES. 1K
R121	4822 051 30391	RES. 390
R122	4822 116 83207	RES. 1.2K
R123	4822 116 83257	RES. 4.7M 1/10W
R124	4822 051 30684	RES. 680
R125	4822 051 30222	RES. 2.2K
R126	4822 051 30333	RES. 33K
R127	4822 051 30103	RES. 10K
R128	4822 051 30104	RES. 100K
R129	4822 051 30153	RES. 15K
R130,31	4822 051 30103	RES. 10K
R132	4822 116 83208	RES. 12K
R133	4822 051 30104	RES. 100K
R134	4822 051 30153	RES. 15K
R135	4822 051 30222	RES. 2.2K
R138	4822 051 30473	RES. 47K
R139	4822 051 30103	RES. 10K
R140	4822 116 83256	RES. 56K 1/10W
R141	4822 051 30272	RES. 2.7K
R142	4822 051 30683	RES. 68K
R143	4822 116 83208	RES. 12K
R144	4822 116 83213	RES. 270
R145	4822 051 30102	RES. 1K
R151	4822 051 30222	RES. 2.2K
R152	4822 051 30684	RES. 680

Pos.	Parts code	Description
R153	4822 051 30109	RES. 10
R7Y2	4822 051 30223	RES. 22K
R7Y4	4822 051 30222	RES. 2.2K
R7Z7,Z8	4822 051 30472	RES. 4.7K
R7Z9	4822 051 30103	RES. 10K
R8A1	4822 051 30103	RES. 10K
R8A2	4822 051 30222	RES. 2.2K
R8A3,A4	4822 051 30103	RES. 10K
R8A6	4822 051 30102	RES. 1K
R8A7	4822 051 30222	RES. 2.2K
R8A8	4822 051 30333	RES. 33K
R8B0	4822 116 83214	RES. 39K
R8B1	4822 051 30473	RES. 47K
R8B2	4822 116 83211	RES. 1.8K
R8F0	4822 051 30473	RES. 47K
R8F1	4822 051 30103	RES. 10K
R8F2	4822 051 30472	RES. 4.7K
R8F3	4822 116 83211	RES. 1.8K
R8F4	4822 051 30473	RES. 47K
R8F7	4822 116 83214	RES. 39K
R8F8,F9	4822 051 30473	RES. 47K
R8G0	4822 051 30473	RES. 47K
R8G1	4822 116 83211	RES. 1.8K
R8H0,H1	4822 051 30473	RES. 47K
R8H2	4822 051 30222	RES. 2.2K
R8H3	4822 051 30472	RES. 4.7K
R8H4	4822 051 30102	RES. 1K
R8H5	4822 051 30222	RES. 2.2K
R801	4822 051 30332	RES. 3.3K
R802-04	4822 051 30333	RES. 33K
R805	4822 051 30105	RES. 1M
R807	4822 051 30223	RES. 22K
R808	4822 051 30333	RES. 33K
R809	4822 051 30472	RES. 4.7K
R810	4822 051 30222	RES. 2.2K
R811	4822 051 30104	RES. 100K
R812	4822 051 30105	RES. 1M
R814-16	4822 051 30222	RES. 2.2K
R817,18	4822 051 30103	RES. 10K
R819	4822 051 30561	RES. 560
R820	4822 051 30222	RES. 2.2K
R822	4822 051 30332	RES. 3.3K
R823	4822 116 83207	RES. 1.2K
R826	4822 116 83208	RES. 12K
R827	4822 051 30273	RES. 27K
R828	4822 051 30471	RES. 470
R829,30	4822 051 30152	RES. 1.5K
R841-43	4822 051 30102	RES. 1K
R844	4822 051 30222	RES. 2.2K
R845	4822 116 83208	RES. 12K
R846	4822 116 83214	RES. 39K
R847	4822 051 30152	RES. 1.5K
R848	4822 051 30101	RES. 100
R849	4822 051 30682	RES. 6.8K
R861,62	4822 051 30152	RES. 1.5K
R863	4822 051 30472	RES. 4.7K
R864	4822 051 30391	RES. 390
R865	4822 051 30152	RES. 1.5K
R866	4822 051 30561	RES. 560
R868	4822 051 30221	RES. 220
R869	4822 051 30109	RES. 10
R870	4822 116 83218	RES. 68
R875	4822 051 30332	RES. 3.3K
R876	4822 051 30471	RES. 470
R893	4822 051 30153	RES. 15K
R894,95	4822 051 30101	RES. 100
R896	4822 051 30272	RES. 2.7K

Pos.	Parts code	Description
R897	4822 116 83212	RES. 18K
U001	4822 209 62526	IC AN3237FA
U003	4822 209 30303	IC MSM69653MS
U101	4822 209 30305	IC TDA4711
U106	4822 209 62426	IC 74HC4053
U7Z1	4822 209 73856	IC 74HC86
U801	4822 209 30285	IC NJM2217M
U804	4822 209 30293	IC 74HC4052
U805	4822 209 30294	IC 74HC4066
V101	4822 125 60177	V CAP. 20P
X101	4822 242 80347	X-TAL 8.86MHZ

IN/OUT CONNECTOR PCB ASSEMBLY

Pos.	Parts code	Description
DA06,07	4822 130 32868	DIODE MA153
JA03	4822 267 31391	JACK VIDEO OUT
JA04	4822 267 31392	JACK AUDIO OUT
JA05	4822 267 31391	JACK EXT-V IN
JA06	4822 267 31385	JACK EXT-A IN
JA07	4822 267 31386	JACK HEAD PHONE
JA08	4822 267 31388	JACK DC OUT
JA09	4822 267 31387	JACK DC IN 12V
JA10	4822 267 31386	JACK REMOTE
QA01	4822 130 42733	TR 2SA1162GR
RA03	4822 111 90901	RES. 150K 1/10W
RA04	4822 111 90895	RES. 10K 1/10W
RA07	4822 116 81011	RES. 75 1/10W
RA09,10	4822 111 90919	RES. 47K 1/10W

EVF CONNECTOR PCB ASSEMBLY

Pos.	Parts code	Description
JZ01	4822 267 31389	EVF CONNECTOR 10P

START SENSOR PCB ASSEMBLY

Pos.	Parts code	Description
D5B1	4822 130 82715	PHOTO DIODE PD410PIL

END SENSOR PCB ASSEMBLY

Pos.	Parts code	Description
D5C1	4822 130 82715	PHOTO DIODE PD410PIL

REEL(T) PCB ASSEMBLY

Pos.	Parts code	Description
U5D1	5322 130 50461	PHOTO INTERRUPTER

REEL(S) PCB ASSEMBLY

Pos.	Parts code	Description
U5E1	5322 130 50461	PHOTO INTERRUPTER

EVF PCB ASSEMBLY

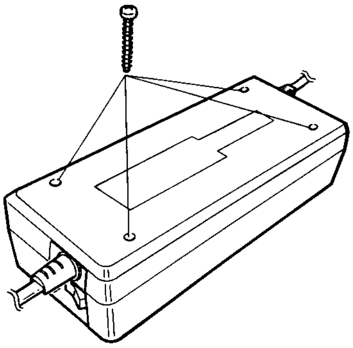
Pos.	Parts code	Description
*CP01	4822 252 20272	CP ICP-N10
D001	4822 130 81244	DIODE ERA22-10
D002	4822 130 81265	DIODE MA152WA
D003	4822 130 82723	DIODE MA77
IC01	4822 209 30302	IC XRA7147F-T1
LED0	4822 130 82726	LED SLA-580LT3F(XP)
Q001	4822 130 62822	TR 2SA1163-BL
Q002	4822 130 62823	TR 2SD1898-R
Q003	4822 130 62817	TR DTC143EK
*TF01	4822 252 20293	T.FUSE 321
*T001	4822 148 81189	FRYBACK KF7354P

TOOLS & JIGS

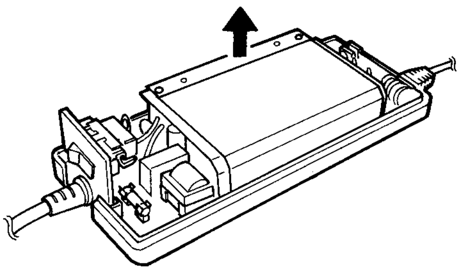
Pos.	Parts code	Description
1	4822 321 61355	EX. CABLE 24P CCD-PRO
2	4822 321 61356	EX. CABLE 7P IND-PRO
3	4822 321 61357	EX. CABLE 6P IND-AWB
4	4822 321 61358	EX. CABLE 4P IND-AWB
5	4822 321 61359	EX. CABLE 5P VIDEO-PRO
6	4822 321 61361	EX. CABLE 5P IND-AF
7	4822 321 61362	EX. CABLE 30P HEAD-SSPA
8	4822 321 61363	EX. CABLE 10P HEAD-SSPA
9	4822 321 61364	EX. CABLE 2P L.MOT-SSPA
10	4822 321 61365	EX. CABLE 3P R.SEN-SSPA
11	4822 321 61366	EX. CABLE 2P REC.SW-SSPA
12	4822 321 61367	EX. CABLE 2P S.SEN-SSPA
13	4822 321 61368	EX. CABLE 5P VIDEO-Y/C
14	4822 320 50236	EX. CABLE 15P C.MOT-SSPA
15	4822 397 30247	DIC-547 CHART

XIII. AC ADAPTOR (SBC5440)

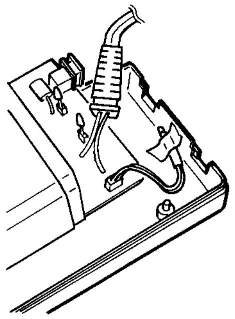
13-1. Disassembly



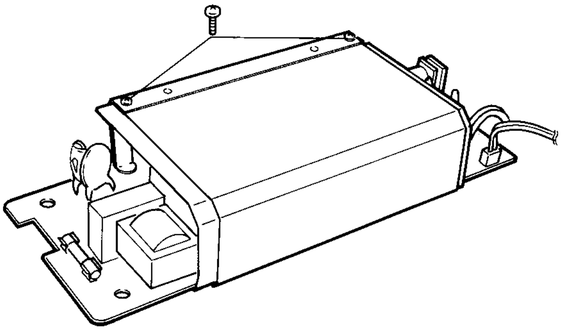
1) Remove four screws.



2) Remove upper case and lift up the Mam PC board with switch panel and DC OUT cable.

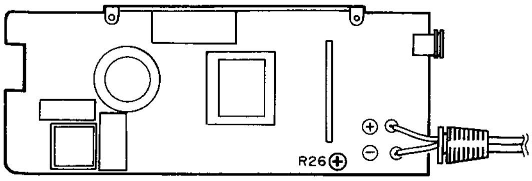


3) Remove the THERMISTER from the bottom case.



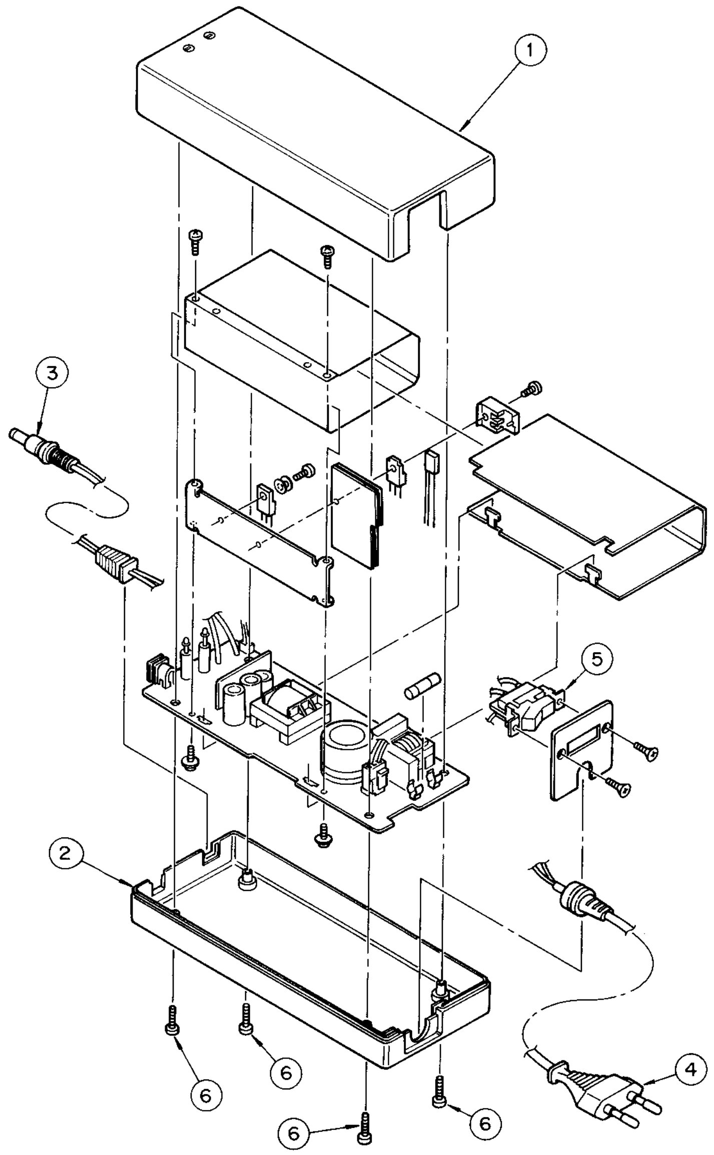
4) Remove two shield cover fixation screws and remove shield cover.

13-2. Output voltage adjustment



1) No load. (DC OUT and CHARGER are open)
2) Connect the DC voltmeter to DC OUT terminal
3) Adjust R26 so that the reading on the DC voltmeter becomes DC 13.2±0.05V.

13-3. EXPLODED VIEW



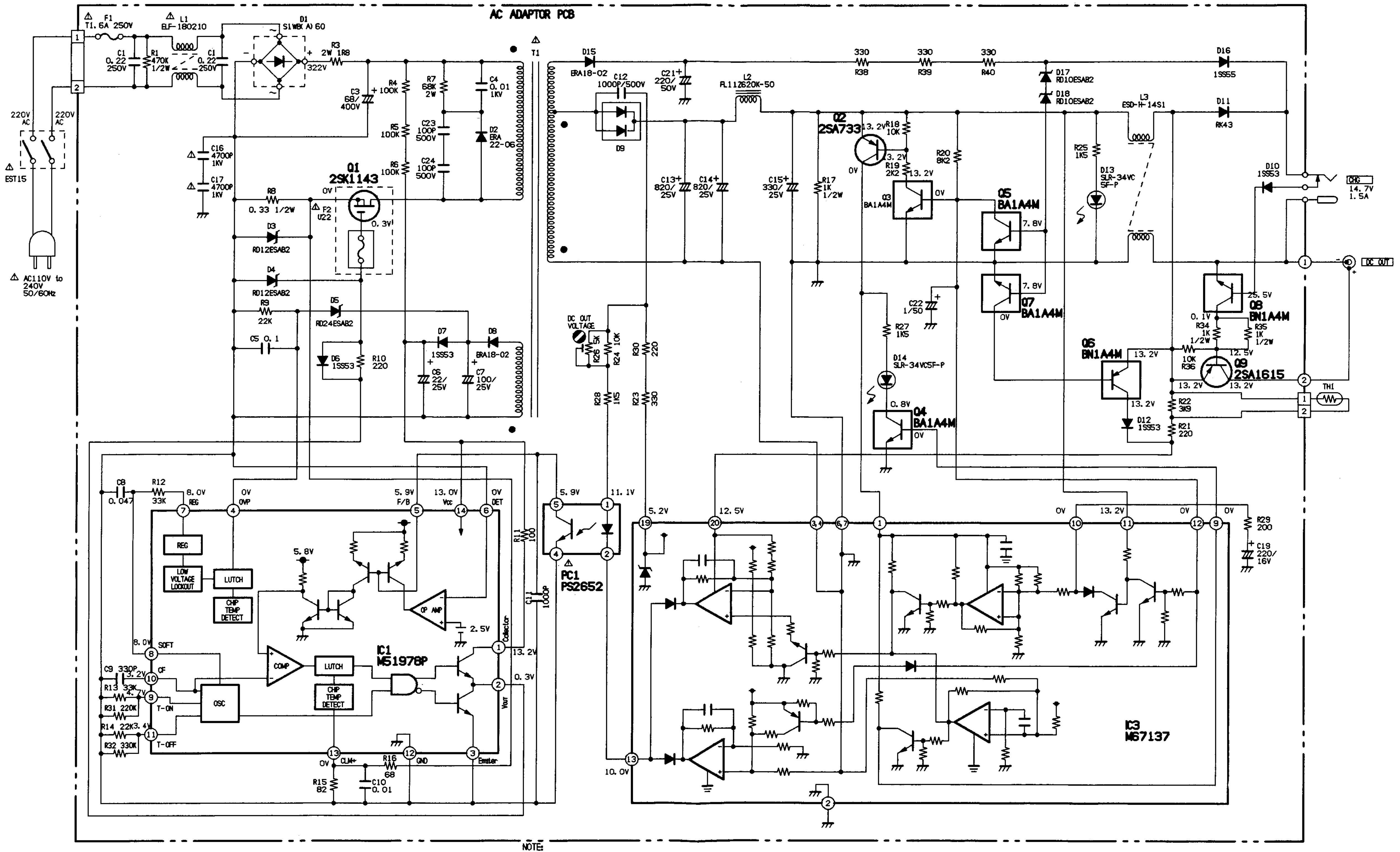
CABINET ASSEMBLY

Pos.	Parts code	Description
1	4822 432 60576	UPPER CASE
2	4822 432 60577	BOTTOM CASE
*3	4822 321 10762	DC CORD
*4	4822 321 10763	AC CORD
5	4822 276 20515	SWITCH
6	4822 502 13837	SCREW

13-4. ELECTRICAL PARTS

Pos.	Parts code	Description
AC ADAPTOR PCB ASSEMBLY		
C001,02	4822 121 43987	CAP. 0.22U 50V
C003	4822 124 23884	CAP. 68U 400V
C004	4822 126 11716	CAP. 0.01U 50V
C005	4822 121 43988	CAP. 0.1U 50V
C006	4822 124 23885	CAP. 22U 25V
C007	4822 124 23886	CAP. 100U 25V
C008	4822 121 43989	CAP. 0.047U 50V
C009	4822 126 11717	CAP. 330P 50V
C010	4822 121 43991	CAP. 0.01U 50V
C011	4822 121 43992	CAP. 0.001U 50V
C012	4822 126 11718	CAP. 0.001U 500V
C013,14	4822 124 23887	CAP. 820U 25V
C015	4822 124 23888	CAP. 330U 25V
C016,17	4822 126 11719	CAP. 0.0047U 50V
C019	4822 124 23889	CAP. 220U 16V
C021	4822 124 23891	CAP. 220U 50V
C022	4822 124 23892	CAP. 1U 50V
C023,24	4822 126 11721	CAP. 100P 500V
D001	4822 130 82621	DIODE S1WB (A)60
D002	4822 130 82049	DIODE ERA22-06V1
D003,04	4822 130 81282	DIODE RD12ESAB2-T4
D005	4822 130 82724	DIODE RD24ESAB2-T4
D006,07	4822 130 82356	DIODE 1SS53-T4
D008	4822 130 82429	DIODE ERA18-02V1
D009	4822 130 82719	DIODE FMB29
D010	4822 130 82356	DIODE 1SS53-T4
D011	4822 130 82721	DIODE RK43
D012	4822 130 82356	DIODE 1SS53-T4
D013	4822 130 82725	DIODE SLR-34VC5F-P
D014	4822 130 82725	DIODE SLR-34VC5F-P
D015	4822 130 82429	DIODE ERA18-02V1
D016	4822 130 82778	DIODE ISS55-T4
D017	4822 130 82722	DIODE RD10ESAB2-T4
D018	4822 130 82722	DIODE RD10ESAB2-T4
*F001	4822 253 30377	FUSE 1.6A 250V
*F002	4822 252 20292	FUSE 115C
IC01	4822 209 30299	IC M51978P
IC03	4822 209 30301	IC M67137
L001	4822 157 63429	FILTER ELF-18D210
L002	4822 157 63431	COIL FL11Z620K-50
L003	4822 157 63432	FILTER ESD-H-14S1
PC01	4822 130 82718	PHOTO COUP. PS2652
Q001	4822 130 62818	TR 2SK1143
Q002	4822 130 62819	TR 2SA733-T
Q003-05	4822 130 62815	TR BA1A4M-T
Q006	4822 130 62816	TR BN1A4M-T
Q007,08	4822 130 62815	TR BA1A4M-T
Q009	4822 130 62821	TR 2SA1615
R001	4822 050 14704	RES. 470K 1/2W
R003	4822 053 11188	RES. 1.8 2W
R007	4822 053 11683	RES. 68K 2W
R008	4822 116 83249	RES. 0.33 1/2W
R017	4822 050 11002	RES. 1K 1/2W
R035	4822 100 11799	V.RES 5K
TH01	4822 111 92041	THERMISTOR
*T001	4822 146 21641	TRANS PT-X51-KT

13-5. AC ADAPTOR SCHEMATIC DIAGRAM


AC ADAPTOR PCB
F1 T1.6A 250V
L1 ELF-180210
D1 S1WBK A) 60
C1 0.22 250V
R1 470K 1/2W
R3 2W 1R8
322V
C3 68/ 400V
R4 100K
R5 100K
R6 100K
R7 68K 2W
C23 100P 500V
C24 100P 500V
C4 0.01 1KV
D2 ERA 22-06
T1
220V AC
EST15
AC110V to 240V 50/60Hz
C16 4700P 1KV
C17 4700P 1KV
R8 0.33 1/2W
F2 U22
Q1 2SK1143
0.3V
D3 RD12ESAB2
D4 RD12ESAB2
R9 22K
D5 RD24ESAB2
C5 0.1
D6 1SS53
R10 220
D7 1SS53
D8 ERA18-02
C6 22/ 25V
C7 100/ 25V
D15 ERA18-02
C12 1000P/500V
D9
C21 220/ 50V
L2 RL11Z620K-50
C13 820/ 25V
C14 820/ 25V
C15 330/ 25V
R17 1K 1/2W
Q2 2SA733
R18 10K
R19 2K2
Q3 BA1A4M
R20 8K2
C22 1/50
R27 1K5
D14 SLR-34VC5F-P
Q4 BA1A4M
R38 330
R39 330
R40 330
D17 RD10ESAB2
D18 RD10ESAB2
L3 ESD-H-14S1
R25 1K5
D13 SLR-34VC SF-P
Q5 BA1A4M
Q7 BA1A4M
Q6 BN1A4M
D16 1SS55
D11 RK43
D10 1SS53
CHG 14.7V 1.5A
DC OUT
Q8 BN1A4M
R34 1K 1/2W
R35 1K 1/2W
R36 10K
Q9 2SA1615
TH1
R22 3K9
R21 220
D12 1SS53
DC OUT VOLTAGE
R26 5K
R24 10K
R30 220
R28 1K5
R23 330
R11 100
C11 1000P
PC1 PS2652
C8 0.047
R12 33K
REG
LOW VOLTAGE LOCKOUT
LUTCH
CHIP TEMP DETECT
OVP
F/B
Vcc
DET
OP AMP
COMP
OSC
SOFT
CF
T-ON
T-OFF
Collector
Vout
Emitter
CLM+
GND
C9 330P
R13 33K
R31 220K
R14 22K
R32 330K
IC1 M51978P
R15 82
R16 68
C10 0.01
IC3 M67137
R29 200
C19 220/ 16V

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(M)

⚠ INDICATE SAFETY CRITICAL COMPOUERTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPOUEUTS ONLY WITH MANUFACTURE'S PECOMMEUDED PARTS.

※ INDICATED VOLTAGES ARE
MEASURED 220V AC INPUT
AND OPEN LOAD.

AC ADAPTOR
SCHEMATIC DIAGRAM

XIIII. KEY TO ABBHREVIATIONS

A	AC	: Alternating Current
	ACC	: Automatic Color Control
	A/CTL	: Audio/Control
	ADC	: Analog to Digital Converter
	ADD	: Adder
	ADJ	: Adjustment
	AE	: Audio Erase
	AEF	: Automatic Editing Function
	AF	: Auto Focus
	AFC	: Automatic Frequency Control
	AFT	: Automatic Fine Tuning
	AGC	: Automatic Gain Control
	AH	: Audio Head
	AL	: After Loading, Allways
	ALC	: Automatic Light Compensation
		: Automatic Level Control
	ALM	: Alarm
	ALU	: Arithmetic Logic Unit
	AM	: Amplitude Modulation
	AMP	: Amplifier
	ANT	: Antenna
	APC	: Automatic Pedestal Control
		: Automatic Phase Control
	APL	: Average Picture Level
	A/S/M	: Audio/Servo/Mechacon
	ASS'Y	: Assembly
	ATT	: Attenuator
	AUD	: Audio
	AUTO	: Automatic
	AUX	: Auxiliary
	AWB	: Auto white balance
B	B	: Base, Blue
	BAL	: Balance
	BATT	: Battery
	BBD	: Bucket Brigade Device
	BCD	: Binary Coded Decimal
	BEG	: Beginning
	BF	: Behind Focus
	BFP	: Burst Flag Pulse
	BKUP	: Back up
	BPF	: Band Pass Filter
	BIT	: Binary Digit
	BLC	: Back Light Compensation
	BK/BLK	: Black, Blanking
	BLU	: Blue
	BNC	: Bayonet Connector
	BOT	: Beginning of Tape
	BPF	: Bandpass Filter
	BRK	: Brake
	BRN	: Brown
	BRT	: Brightness
	BT	: Band Tuning
	BUFF	: Buffer
	BW or B/W	: Black and White
C	C	: Capacitance, Collector, Colour, Character
	CA	: Camera
	CAL	: Calibration
	CAMCHR	: Camera Chraminance
	CAMVBS	: Camera Video Bramking Sync
	CAP	: Capstan, Capacitor
	CAR	: Carrier
	CARR	: Carrier
	CASS	: Cassette
	CB	: Composite Brank
	CC	: Cassette Compartment
	CCD	: Charge Coupled Device
	CCT	: Circuit
	CdS	: Cadmium Sulphide
	CD	: Count Down
	CE	: Chip Enable
	CF	: Ceramic Filer, Color Frame, Correct Focus
	CH	: Channel
	CHG	: Charge
	CHROMA/CHR	: Chrominance
	CLK	: Clock
	CLR	: Clear
	CMD	: Command
	CMOS	: Complementary Metal Oxide Semiconductor
	CNT	: Count, Counter
	CO/COL	: Colour
	COM	: Common
	COMB	: Combination Comb Filter
	COMP	: Comparator Composite Compensation
	CONN	: Connector
	CONV	: Converter
	CP	: Circuit Protector Clamp Pulse
	CPC	: Capstan Phase Control
	CPU	: Central Processing Unit
	CS	: Composite sync, Chip Select
	CTC	: Crosstalk Cancel
	CTL	: Control
	CY	: Cyan
D	D	: Drum, Digital, Diode, Drain, Data
	DAC	: Digital to Analog Converter
	dB	: Decibel
	DC	: Direct Current
	DD	: Direct Drive
	DEC	: Decoder
	DEMOD	: Demodulator
	DEMUX	: Demultiplexer
	DET	: Detector
	DEV	: Deviation
	DFRS	: Drum Free Running Stop
	DG	: Differential Gain
	DIF	: Differential
	DISCR	: Discriminator
	DL	: Delay Line
	DOC	: Dropout Compensator
	DOD	: Drop Out Detector
	DP	: Differential Phase
	DPC	: Drum Phase Control
	DYAC	: Dynamic Aperture Control
E	E	: Edit, Emitter
	EDP	: Electronic Data Processing
	E-E	: Electric to Electric
	EF	: Emitter-Follower
	EMP	: Emphasis
	EN	: Enable
	ENC	: Encoder
	ENV	: Envelope
	EOT	: Ene of Tape
	EP	: Extended Play
	EQ	: Equalizer
	ES	: Electronic Switch
	ESNS	: End Sensor
	EXP	: Expander
	EXT	: External
F	F	: Farad, Fuse
	FAD	: Fade, Fadex
	F ADV	: Frame Advance
	FDP	: Fluorescent Display Panel
	FE	: Full Erase
	FET	: Field Effect Transistor
	FF	: Fast Forward, Front Focus Flipflop, Full Frame
	FG	: Frequency Generator
	FIA	: Field indication A
	FIM	: Field indication Middle
	FM	: Frequency Modulation
	FR	: Full Recording, Frame, Fusible Resistor
	FREQ	: Frequency
	F-V CONV	: Frequency to Voltage Converter
	FWD	: Forward
	FWD S	: Forward Search
G	G	: Green, Gate, Grid
	GEN	: Generator
	GND	: Ground
	GRN	: Green
	GRY	: Gray
H	H	: High, Henry, Hour, Horizontal
	HBF	: Horizontal Burst Flag
	HD	: Horizontal Drive
	HLCC	: High Light Colour
	HPF	: Highpass Filter
	Hz	: Herz
I	IC	: Integrated Circuit
	ID	: Identification (Pulse)
	IF	: Intermediate Frequency
	IFR	: Infrared
	IFT	: Intermediate Frequency Transformer
	IND	: Indicator
	INH	: Inhibit
	INS	: Insert
	INT	: Internal, Interrupt
	INV	: Inverter, Interleave
	I/O	: Input/Output
	IR	: Infrared
L	L	: Low, Left
	LACT	: Lock Auto Colour Track
	LCD	: Liquid Crystal Display
	LED	: Light Emitting Diode
	LIM	: Limiter
	LIN	: Linearity
	LLD	: Low Light Detector
	LOAD	: Loading (Cassette)
	LP	: Long Play
	LPF	: Lowpass Filter
	LSB	: Lower Sideband
	LUMWIND	: Luminance Window
M	M	: Motor, Mega
	MAX	: Maximum
	MDA	: Motor Drive Amplifier
	MECHACON	: Mechanism Control
	MIC	: Microphone
	MIN	: Minimum
	MIX	: Mixer, Mixing
	MM	: Monostable Multivibrator
	MNOS	: Metal Nitride Oxide Semiconductor
	MOD	: Modulation, Modulator
	MODEM	: Modulator-Demodulator
	MON	: Monitor
	MOS	: Metal Oxide semiconductor
	MUX/MPX	: Multiplexer, Multiplex
	MS	: Mode Select
	MUT	: Muting
N	NAND	: Not-And
	NC	: Not Connected, Normally Closed
	NFB	: Negative Feedback
	NLN	: Non-Linear
	NO	: Normally Open
	NOR	: Normal, Not-Or
	NR	: Noise Reduction
O	OP	: Operation
	OPAMP	: Operational Amplifier
	ORG	: Orange
	OSC	: Oscillator
P	PB	: Playback
	PC	: Photocoupler, Pulse Counter
	PCB	: Printed Circuit Board
	PCM	: Pulse Code Modulation
	PG	: Pulse Generator
	PGM	: Program
	PI	: Photo Interrupter
	PIC	: Picture Control
	PIF	: Picture Intermediate Frequency
	PEIK	: Peak Luminance Detect Out
	PLA	: Programmable Logic Array
	PLL	: Phase Locked Loop
	PNK	: Pink
	POS	: Position
	p-p	: Peak-to-Peak
	PR	: Pinch Roller
	PREAMP	: Preamplifier
	PRL	: Preroll
	PROC	: Prpcesspr
	P/S	: Pause/Still
	PSC	: Pulse Swallowing Control
	PU	: Pickup
	PUT	: Programmable Unijunction Transistor
	PWB	: Printed Wiring Board
	PWM	: Pulse Width Modulation
	PWR	: Power
Q	Q	: Quality Factor
R	R	: Red, Right
	RA	: Resistor Array
	RAM	: Random Access Memory
	REC	: Recording
	REF (P)	: Reference (Pulse)
	REG	: Regulated, Regulator
	REM	: Remote
	REMOCON	: Remote Control (Unit)
	REV	: Reverse
	REV S	: Reverse Search
	REW	: Rewind
	RF	: Radio frequency
	RGB	: Reset Gate Bottom
	RGM	: Reset Gate Middle
	RGT	: Reset Gate Top
	ROM	: Read Only Memory
	R/P	: Record/Playback
	RPT	: Repeat
	RS FF	: RS Flipflop
	RST	: Reset
	RT	: Rotary Transformer
	RUN	: Running
	RY	: Relay
S	SAW	: Sawtooth, Surface Acoustic Wave
	SC	: Subcarrier, Simulcast
	SCH	: Search
	SEL	: Select, Selector
	SENS	: Sensor
	SEP	: Separator
	SER	: Serial
	SF	: Source Follower
	SFF	: Short Fast Forward
	SIF	: Sound intermediate Frequency
	SN	: Signal to Noise Ratio
	SM	: Smear
	SOL	: Solenoid
	SOS	: Sound on Sound
	SP	: Standard Play
	SR	: Supply Reel
	SREW	: Short Rewind
	S/S	: Slow/Still
	SSG	: Sync Signal Generator
	SSNS	: Start Sensor
	STD	: Strobe Data, Standard
	SUP	: Supply
	SW	: Switch
	SWD	: Switched
	SYNC	: Synchronization
T	TAL	: Tally
	TBC	: Time Base Corrector
	TC	: Tension Control, Time Code
	TEN	: Tension
	TF	: Thermal Fuse
	TG	: Trancefer Gate
	TIM	: Timing
	TK	: Tracking
	TNR	: Tuner
	TP	: Test Point
	TPZD	: Trapezoid
	TR	: Transistor, Trimmer
	TRANS	: Transformer
	TU	: Take-up
U	UL	: Unloading
	UNREG	: Unregulated
	UNSW	: Unswitched
V	V	: Vertical, Volt
	VACT	: Video Action
	VCO	: Voltage Controlled Oscillator
	VD	: Vertical Drive
	VIF	: Video Intermediate Frequency
	VLT	: Violet
	VR	: Variable Resistor
	VS	: Video and Sync
	VSCH	: Variable Search
	VV	: Video to Video
	VXO	: Variable Crystal Oscillator
W	W	: Watt
	WAF	: While Auto Focus
	WB	: White Balance
	WARN	: Warning
	W & D	: White and Dark
	WHT	: White
	WIN	: Window
	WV	: Working Voltage
X	XTAL	: Crystal
Y	Y	: Yluminance
	YE/YEL	: Yellow
	YH	: Luminance High
	YL	: Luminance Low
Z	ZM	: Zoom